ORI
915.4
SPr/Mod
48615
00048615

Digitized with financial assistance from

on 07 January, 2017

MODERN INDIA;

WITH

ILLUSTRATIONS

OF THE

RESOURCES AND CAPABILITIES

OF

HINDÚSTAN.

2985

48615

BY

HENRY H. SPRY, M.D., F.G.S., M.R.A.S.,

BENGAL MEDICAL STAFF,

&c. &c.

IN TWO VOLUMES.

VOL. I

LONDON:

WHITTAKER & Co., AVE MARIA LANE.

MDCCCXXXVII.

ORI 915.1
SPR/Mcl
1815.

LONDON:
Printed by WILLIAM CLOWES and SONS,
Stamford Street.

TO

ROBERT R. PENNINGTON, ESQ.,

PORTMAN-SQUARE, LONDON.

DEAR SIR,

To whom can I with greater propriety inscribe the result of my observations in India, than to the friend to whose generous solicitude in the promotion of my interest, during the early part of my professional career, the appearance of the present volumes may be mainly attributable? The grateful heart delights in the expression of its gratitude. Accept, then, my dear Sir, however imperfectly they may be conveyed, my warmest acknowledgments for the numerous acts of kindness which I have received at your hands; and be assured that, although years have rolled away, they are as fresh in my recollection as at the moment in which they were conferred—while the feelings they excited remain as vivid as at the period of their first creation.

Believe me to remain,

Very gratefully and sincerely yours,

HENRY HARPUR SPRY.

London, March 26, 1837.

PREFACE.

In offering a Work to the Public, it is usual to introduce it by a few explanatory remarks in the form of a Preface; and I am desirous that the following pages should derive all the advantages which so judicious a custom affords. The motives for an undertaking like the present, which is acknowledged to be the work of an unpractised pen, may be supposed to be very strong. Mine have resulted from a conviction that much remains to be told concerning the national importance of M[illegible] India. Our Oriental possessions ought to [illegible] a more than ordinary degree of interest in the breasts of all who can appreciate the glory of retaining, and of improving, the most splendid colony which any nation, ancient or modern, could boast.

Soon after my arrival in India I was struck with the difficulty which every one appeared to experience in obtaining from his brother Anglo-Indians information and instruction upon those affairs of the country which did not fall within the peculiar province of the individual to whom the applic[illegible]on

was addressed. Comparatively few, amongst the vast number of British subjects who have hitherto been domiciled in India, have devoted themselves to the task of acquainting their countrymen at home with the results of the observations which they have made upon the land of their adoption. Of these, the greater number have been men of profound learning, who, attracted by the magnificence of the antiquities, or smitten with a love of the lore of a country whence Europe has principally derived its knowledge of arts and arms, have chosen subjects which, though of the highest degree of importance and value in themselves, are not generally interesting, and do not tend to invite the great mass of the people to direct their attention to inquiries which would lead to national improvement in the East, and to commercial prosperity at home. Latterly, several exceedingly clever, amusing, and accurate delineations of the scenery and manners of India have appeared, which have been productive of almost incalculable good, since they have shown that it is not necessary to wade through whole libraries of grave and solemn history to make acquaintance with the most striking features of our Oriental possessions.

It is only necessary to mention the works of Bishop Heber, Captains Basil Hall, Mundy, and Skinner, and those of Miss Emma Roberts, to prove that, when handled in a popular manner,

there can be no subjects more attractive than those relating to a country upon which so much apathy and ignorance have hitherto prevailed.

The great success which has attended these lively descriptions of our Eastern hemisphere has encouraged me to hope, that the additional information which I am enabled to offer may prove acceptable to the public at large. Conscious of great inexperience in the decorative department, if I may be permitted so to style it, of literature, I have aimed at nothing beyond a plain and simple statement of facts. I claim no merits excepting those of accuracy, and of the patient investigation of objects connected with science, which I deemed of importance to persons anxious to invest capital in the cultivation, or to engage in the manufactures of a luxuriant but neglected soil.

The historical picture now presented for the suffrages of the reading portion of the public, is drawn almost exclusively from personal observation: every fact, with very few exceptions, therein recorded having come under my own immediate cognoscence. I have endeavoured to preserve, in my descriptive views, the vividness of first impressions; while a residence of seven years of constant association with the natives of various parts of the country has enabled me to correct the erroneous ideas which a hasty glance is so apt to originate.

If, in discussing certain points, the language

employed should be thought too strong, I trust that it will not be considered as indicative of a presumptuous spirit, eager to expatiate upon errors; but rather attributed to the true cause,—the earnest desire which I feel to direct the public attention to the loss which the British nation must sustain, so long as the resources of her Eastern Empire remain neglected in the manner which they may now be said to do. My sole aim is utility; and in the arrangement of the multifarious topics which I have considered essential to the promotion of my object, I have sought to create an interest in the mind of the general reader, by mixing with the more important details a proportionate quantity of lighter and more inviting matter.

It seems to be an incumbent duty upon those, however humble their literary pretensions may be, who have gathered knowledge in so fertile and so new a field, to use their most strenuous endeavours to render the condition of an empire better known, which is daily becoming more and more important in the eyes of the British merchants and men of science; and which must, and will, one day rise to be the greatest commercial, as she now is the greatest political colony which any nation ever possessed.

CONTENTS OF VOL. I.

CHAPTER I.

Bengal—Characteristics of the People—State of Agriculture —Sugar — Farming — Fruits and Vegetables — Cajure or Date Palm—Manufacture of Sugar from its juice—Depôt for rearing Elephants — Discovery of a race of Cannibals — Dum Dum — European Soldiery — Hospitals — Artillery Practice — The Officers . . . . . *page* 1

CHAPTER II.

Palankeen Conveyance—Post-office arrangements, and Batta question—Shock of an Earthquake—Incidents on the Journey —Ganges at Rajmahal — Ruins — Personal Conflict — Singular instance of Prejudice in a Hindú—Passage through the Jungles —Singular Habitation—Hospitality of Indigo Planters—Paliàpúr —Birds of the Rajmahal Jungles—Wild Animals—Bees . 38

CHAPTER III.

JOURNEY CONTINUED.

Baugulpore District — Native Character — Patna — Buxar — Native Hospitality—The City and Province of Benares—Productions—Saltpetre—Carbonate of Soda—Sugar-Cane Cultivation—Superstitions—The Government Stud for Horses—Cole Campaign—Journey resumed—Allahabad—Ancient Pillar and Guns—Cawnpore and Keitah 89

CHAPTER IV.

Keitah—Arrangements — Servants — Making Calls — Cantonments—Insalubrity—Government Order—Soil—The Boondelas—Bad Moral Character—Culpee—River Jumna—Chillatarah Ghât—Varieties of River Water—Professional Visit to the Rajah of Chatterpore — Deserted on the Road — Introduction — Female Apartments—The Town—Sporting—A Suttee . 130

CHAPTER V.

Leave Keitah—Preparations for Marching—Arrival at Cawnpore—Cantonment Houses — Ice Houses — Want of Protestant Churches in India — Missionaries — Musquitoes, Scorpions, and Snakes — Snake-charmers — Influence of Music — Anecdote of Snakes — Antidote for the Bite of venomous Serpents . 180

CHAPTER VI.

Journey to Lucknow—Meet the King — Cavalcade — Royal Menagerie — Wild Man — Steam-Boat Excursion — Palace of Beeron—Public Buildings—Natural Resources of the Kingdom—The King—Aga Meer—Amusements—Death of Aga Meer—Prepare to leave Lucknow—Arrival at Cawnpore . 223

CHAPTER VII.

Marquis of Hastings — His Works of Public Utility — Delhi Canals — Canal of the Dooab — Flourishing condition of the Villages — Discovery of an ancient Town — Antiquities—Capabilities afforded by the Canals—Views on Agriculture—Advantages of good Roads—Seasons of Famine—Great Mirzapore Road—Substitute for Bridges—Benares' new Road . 273

APPENDIX :—

1. Important measures of Government—New Medical College—State of the Public Mind . . . 300

2. Mineral Productions of Bengal . . . 319

APPENDIX:—(*continued.*)

3. On Military Punishment . . . 321
4. Artesian Wells in Calcutta . . . 324
5. On the Topography and Capabilities of Chota Nagpore, Ramghur, &c. 326
6. On the Impurities contained in the Ganges Water 330
7. On the Diamond Mines of India . . 332
8. Fish of the Jumna—Frequency of Entozooa in those of the Rivers of Central India—Geology of the Banks of the Jumna 338
9. On the Manufacture of Glauber's Salts . . 342
10. Meteorological and Hygrometrical Tables . 345

ILLUSTRATIONS

OF THE

RESOURCES AND CAPABILITIES

OF

HINDÚSTAN.

CHAPTER I.

Bengal—Characteristics of the People—State of Agriculture—Sugar—Farming—Fruits and Vegetables—Cajure or Date Palm—Manufacture of Sugar from its juice—Depôt for rearing Elephants—Discovery of a race of Cannibals—Dum Dum—European Soldiery—Hospitals—Artillery practice—The Officers.

THE portion of India which comes under the denomination of Bengal, although it is usual, in Europe, to understand by the term the whole of the Presidency, is, in fact, only a province of Hindústan, comprehending Calcutta and the districts immediately surrounding it. No resident in India ever thinks of applying the term to any other part of the peninsula; and persons repairing to the seat

of government from Upper Hindústan talk of going down to Calcutta, as the people in the provincial countries of England talk of going up to London. The topography of our empire in the East appears to have been much neglected at home, although the study is very necessary to enable the friends or relatives of those who may be stationed or settled in the country, to ascertain the exact place of their location.

Comparatively few people trouble themselves with any inquiry respecting the statistics of India, and very erroneous opinions prevail relative to the present state of its agriculture.

Bengal, Bahar, and that part of Orissa which belongs to the British government, contain 136,000 square miles. The district of Burdwan, appertaining to the former of these provinces, alone contains 5,174 square miles, and the entire three, constituting what may be called Lower Hindústan, have, in all, seventeen divisions, with twelve principal rivers.

The Bengalees are a race distinct in many respects from the people who inhabit the provinces of Benares, Rohilcund, Bundlekund, Rajpootana,

Malda, or the Nerbuddah. Their style of living is different, and their manners and their climate are different, the latter particularly so; the climate of Bengal being damp, and the heat and cold more tempered than in the provinces of Upper Hindústan. They have, moreover, a dialect peculiar to themselves, which is unintelligible to persons only conversant with the Hindústanee language. In their social relations they are characterized as a degenerate class of people, being notorious for low cunning and deceit, and for the readiness with which they will enter into schemes of fraud and treachery.

The nature of their soil partakes of the character of land usually found at all great estuaries, some parts being argillaceous at the surface and calcareous beneath, while others are arenaceous, with a substratum of muddy alluvium. The province contains many low swamps and fertile plains, but there are very few hills. The crops being assisted by a plentiful supply of rain water, irrigation, with the exception of the sugar-cane cultivation, is seldom required.

Those who are unfriendly to India, and whose

interest it is to represent her agricultural resources as all-powerful, and much to be dreaded, in order that she may be prevented from participating in the enjoyment of an equality of commercial rights with other colonies, will be surprised perhaps to learn that, although the soil of Lower Hindústan is extremely rich, its productions, with the exception of indigo, and perhaps opium, are all of an inferior quality. There is abundance, it is true, but scarcely any thing excellent of its kind, rankness and quantity taking the place of purity and quality.

The sugar-cane cultivation, from which so much is dreaded, is very limited, and conducted in the rudest and most unscientific manner. Years of active exertion on the part of those interested in improving the resources of the country will be required before this branch of culture can be brought to any formidable extent. Among the people themselves sugar is always in steady demand, as it enters largely into the composition of many of their articles of food; and the six thousand tons now annually exported comprises all that is left, after their wants have been supplied. When it is considered that the

yearly importation into Great Britain of this staple commodity from the West India islands averages one hundred and ninety thousand tons, there surely can be no occasion for the West India planter to give himself a moment's uneasiness on the subject. But should the province of Bengal, or British India generally, be able to furnish a much larger quantity, would the effect anticipated by these alarmists be produced? Assuredly not, as the following statement will be sufficient to prove :—

The quantity of teas imported into England during the seven months ending 5th August, 1835, amounted to	lbs. 21,011,000
During the same period of 1836	36,650,000
Showing an increase of	15,639,000

And a proportionate increase in the duties of £1,279,000.

As on the quantity of teas consumed depends in great measure the demand for sugar, so in proportion to the increase and consumption of the former will that of the latter depend. So far, therefore, from the importation of British East India sugar in any large quantity being likely to lower the price of that article, and occasion a glut in the market, it is evident that, should the consumption of tea

continue to increase as it has done of late, the importation of twice 6,000 tons will scarcely serve to keep the price of sugar down to its present standard. In this view of the case I omit one circumstance of considerable importance relative to the exclusion of colonial produce, namely, that it operates as a tax of the worst kind on the community at large, since it presses on the commerce, without increasing the nation's wealth.

I have been thus much tempted to digress from my immediate subject, on account of the great importance which the question relative to the sugar cultivation of India has acquired in the commercial circles of Europe. To proceed—agriculture in Bengal has never been carried beyond its first stage. The religion, the genius of the people, as well as their climate, have limited them to a few of the simplest wants, while the nature of their government has left them without motive or desire for industry. Times of prosperity have to them only afforded a more plentiful supply for wants previously established without creating new ones; while periods of partial distress never bring provident and energetic habits into active exercise.

In addition to these adverse circumstances, the cultivators of the soil in Lower Hindústan are burthened by a weight of complicated revenue exactions. From these circumstances uniformly offering impediments to the progress of improvement, agriculture, as it might be expected, has not advanced a single step since the first division of the inhabitants into distinct classes. The entire productions of the country may, therefore, be reckoned in a great measure the gift of the soil. They proved insufficient to ensure national prosperity, when India had neither rivals in trade nor a foreign tribute to pay. But now that England has supplanted the whole of her manufactures, by underselling her in her own bazaars; that she parts with a large portion of what her soil still furnishes; and that the residue does not save her from an annual exportation of specie,—it is evident that she cannot remain longer in such a simple and passive state. Its burthens reduce India, in fact, to an equality with less fertile countries, and like them it must actively endeavour to cope with its rivals, by the exertion of a higher degree of activity and industry.

All the improvements which art and labour have accomplished in other countries remain to be tried in Hindústan; they are so many, the territories of British India are so extensive, and the soil so excellent, that its well-wishers have reason to rejoice that so prodigious a resource has been left for more enterprising and practised hands. The bulk of the people, however, have never extended their hopes to the enjoyment of property, and the idea of labouring for prospective advantages may be said to be unknown to them. To attain any improvement in the agriculture of the country, it will therefore be necessary to have recourse to instruction, as well as to encouragement of a pecuniary nature; and probably no means would so effectually promote the object in view as a liberal distribution of prizes; since it would call all the energies of the people into active exercise, by exciting their natural cupidity.

In farming in Lower India, two oxen are yoked to each plough, but, although in common use for agricultural purposes, no attention appears to be paid to the breed of cattle. Dairies are common in places inhabited by cowherds or milkmen, about

a gallon of milk being yielded, on an average, by each cow; but in consequence of religious prejudices, the fattening of cattle for slaughter does not come within the domestic economy of the Hindús. The usual implements employed in husbandry are the plough, the digging hoe, the weeding instrument, the rake, the harrow, and the sickle. They are all of the rudest construction, and will scarcely bear a comparison with those of a corresponding description used in England.

In Bengal there are three harvests in the year,—the spring, the summer, and the winter harvest; while in Upper Hindústan there are only two,—the spring, which is the principal one, since it is the wheat harvest, and the autumn, which is also very extensive, on account of the number of grains and plants that are then ripe. The small quantity of manure which is employed comes from the cow-pens; but it is only about Calcutta that the land is improved by this adjunct. In the Dinagepore and Rungpore districts, where the sugar cultivation is followed, the scrapings of the villages and old water-courses, in conjunction with the cake left after expressing the mustard-oil, are employed to

assist the soil; but for raising his green crops, the cultivator relies solely on the natural powers of the land. From the swampy condition of the province, no wheat cultivation can be carried on, and a very small quantity of barley is grown. In many places embankments are necessary to prevent the sea-water from overflowing the rice-fields.

With the exception of a small quantity of pasture, no land is employed as grass-land; and no attempts are made to preserve hay, a class of servants being kept for the purpose of supplying the horses with this kind of fodder, called grass-cutters, whose duty it is to go out daily into the fields for the purpose of cutting young grass in quantities sufficient for the morrow's consumption, while in the upper provinces it is necessary in the dry season to dig for the roots. The farmers seldom possess a horse, and none can boast of anything but a small ill-bred animal, the labour on the estate being performed by oxen. Some attention is paid to gardening and the cultivation of orchards. The principal fruits are cocoa-nuts, betel-nuts, Palmyra-nuts, pumplenusses, dates, mangoes, bread-fruit, rose-apple, jamba or engenia, guava, pomegranate,

pine-apples, jujubes, a great variety of limes and plantains, peaches and lechees, and, as it has been previously stated, the sugar-cane is abundantly cultivated in the neighbourhood of some of the villages, together with yams, cucumbers, garlic, ginger, and tobacco. It must not, however, be presumed in consequence of this enumeration, that so extensive a province is a perfect garden throughout, since the condition of the land varies considerably. In the neighbourhood of the sea-shore large tracts are annually inundated; the spaces taken up by lakes and rivers, the woods of Tipperah, the wilds of Ramghur, Palamow, Chota Nagpore, and those extensive regions, known by the name of Sunderbunds, which form the Delta of the Ganges, are very considerable, the whole occupying a space of many hundred miles in extent.

Again, the district of Nuddea abounds in a light earth, and is by no means calculated for cultivation requiring a strong rich mould. Nature seems, however, to have made ample compensation for this defect, since the soil is exceedingly favourable to the growth of the cajure, or date-tree (*Phœnix dactylifera*), which abounds. These palms produce a rich

saccharine juice, though only half the strength of that obtained from the cane; and they occupy spots which could not be put to any other useful purpose, being planted on the margins of tanks, and around fields, to serve as landmarks. The poor cottager sometimes plants them close to his hut, as a protection from the fierce rays of the sun, or the peltings of the storm. The tree is raised from the stone of the fruit, which is the same as that of the dried date brought from Bussorah, only smaller. The tree continues to grow for about thirty years, varying in height, according to the nature of the soil and the care taken of it, from twelve to between thirty and forty feet; no branches spring from the trunk, but it is crowned with a large bunch of leaves at the top. After taking root the tree is generally left to nature, some cultivators, however, open the ground about the roots, and put in fresh soil, which is found greatly to promote the growth of the tree. At about the age of ten years, the cajure begins to bear fruit, which ripens in the month of May. Incisions, for the purpose of extracting the juice, are made when the tree is seven years old; at this time it has usually attained the height of four feet.

The juice is drawn during the cold season, that is, from the month of November to the end of February; the bark continuing to yield it annually, during a period of twenty or twenty-five years. Each tree furnishes about two and a quarter máns of juice (1cwt. 2qrs. 17lbs.), which, when boiled down, gives fourteen pounds of the inspissated liquor called *goor*, and a mán (82 lbs. 2 oz.) of cajure *goor*, yields about 9 seers, (eighteen pounds) of clayed sugar, called *chenee*. It is generally calculated that twenty-five trees will produce a mán of refined sugar (*chenee*) in the course of the season. The juice is drawn from beneath the bunch of leaves on the top, whence it is conveyed by bamboo pipes into an earthen vessel suspended from the summit. When fresh, the juice is not unpleasant to the taste, and is much sought after by the European soldiery, as a beverage under the denomination of toddy. It is distinguished from cane juice, in being *brisk* as well as sweet. The manufacture of the liquid into sugar, is carried on in the same rude and negligent manner as that of the cane juice. The produce of date-tree sugar, in the district of Nuddea alone, was computed, a few years since, at

577 tons (15,000 máns). The owners of these palms pay a revenue to Government, varying from four to six rupees for every hundred trees, the assessments being the same as those of the cocoa-nut orchards.

The encouragement now given to sugar speculators by the equalization of the duties on East and West India sugars, will, in all probability, lead to the extension of the date-tree cultivation. The sugar afforded by its juice would answer for home consumption, though, on account of its weakness, it would not pay for exportation. The supply of cane sugar not being equal to the demand, will cause an advance in the price, and induce the people to have recourse to date-tree sugar in their household economy, so as to enable them to dispose of the better sort.

The division of Chittagong, appertaining to the eastern portion of the province of Bengal, has been selected for the grand depôt established for the purpose of taming and rearing the Company's elephants. The superintendent of the stud despatches men skilled in the pursuit into the neighbouring blue mountains, in the direction of Ava, who hunt

down and secure these valuable animals. Many, however, are born and reared at the Company's establishment*. The pursuit of wild elephants in these regions has brought us acquainted with a race of cannibals scarcely to be distinguished from the monkeys with which they herd. Were not the information relative to these people so strongly authenticated as to leave no doubt upon the minds of those who desire to make inquiries upon the subject, the reader might justly refuse to credit the existence of a set of savages, scarcely worthy of the name of man. But having gathered the following particulars concerning them from the able and enterprising officer who held a staff appointment from the government as superintendent of the stud, I am enabled to offer them to the public as facts, which can be corroborated by the testimony of all who are connected with the elephant depôt at Chittagong. The Kookees, as these brutal wretches are called, have, according to the account afforded me by Major Gairdner, protuberant bellies: they are low in stature, with set features, and muscular limbs. They speak a dialect peculiar to themselves, and build their villages on the boughs of the forest trees.

*See the Appendix.

They do not appear to have any settled abiding place, but wander in herds from one wilderness to another. When a site favourable to their purpose has been found, the whole community immediately set to work to collect bamboos and branches of trees, which are afterwards fashioned into platforms, and placed across the lofty boughs of the different trees. On this foundation the rude grass superstructure is raised which forms the hut. When these sheds are completed, and every family provided with a habitation, the women and children are taken into their aërial abodes. The men then lop off all the branches within reach of the ground, and having constructed for themselves a rough ladder of bamboos, they ascend the trees by means of this rude staircase, drawing it up after them to prevent the intrusion of strangers, and a necessary precaution against the encroachments of their four-footed companions of the forest. In this manner they repose, floating in the branches, and cradled by the wind, partaking more of the savage ferocity of brutes than the milder charities of man.

To persons who have travelled much in India, the mere circumstance of a whole tribe of natives choosing to take up their permanent habitations in

the trees would not excite much surprise, since the watchmen who are employed in the charge of mango groves, or other valuable fruit cultivations, often form a sort of nest on the branches of some neighbouring trees, a small hut, or rather shed, just sufficient to shield the body from the inclemency of the weather, being raised upon a platform resting on the boughs. The Kookees, therefore, in this particular, only differ from more civilized natives, forced by necessity upon expedients of the kind, by living constantly in trees; in other respects there is fortunately no similarity, even to the most degraded beings of the human race. They openly boast of their feats of cannibalism, showing, with the strongest expressions of satisfaction, the bones and residue of their fellow-creatures who have fallen a prey to their horrible appetites. So intent are they in their search after human flesh, that the superintendent was always obliged to send out the men employed in hunting the elephants armed with muskets, and in not fewer than parties of ten. One poor man they unfortunately caught while off his guard, and devoured him almost, before his life blood had congealed in his veins. Attempts have been

made to subdue and civilize these people, and one of their head men was won over, and employed by Major Gairdner at the elephant depôt, but he could not be induced to relinquish his old habits. In a short time he was detected in the commission of a murder, and was executed by the civil authorities of Chittagong. When the tidings of this man's fate reached the ears of his former associates, they became greatly incensed, and for a long time afterwards exerted themselves, happily in vain, to obtain possession of the person of the superintendent, who had frequently occasion to cross their path in the execution of his duty. These people, strange as it may appear, are living within 150 miles of Calcutta, the metropolis of British India and the seat of government, and yet their existence even is scarcely known by the people who are not in authority—comparatively little information from the woods and jungles of the savage portions of Bengal finding its way to the Calcutta newspapers. The existence of cannibals in India is a fact only recently established, and many were of opinion that the races were extinct; it has now, however, been proved beyond all question, that the Kookees, who infest the blue mountains of Chit-

tagong, and the Goands, inhabiting the hill forests of Nagpore, both feed upon human flesh. There is this distinction in favour of the latter, that they partake of it only occasionally, and in compliance with a religious custom—while the Kookees delight and banquet on the horrid repast.

Shortly after my arrival in India my professional duties called me to Dum Dum, a military station about five miles from Calcutta. This place has been selected for the head-quarters of the artillery belonging to the Bengal army, and there are seldom fewer than 1500 European soldiers attached to it, besides a proportionate number of women and children. I took advantage of the opportunities which a residence at this station afforded me, to make myself acquainted with many interesting circumstances connected with the habits and general conduct of the European soldiery; and therefore venture upon the following observations with stronger feelings of confidence than a transitory visit would have permitted.

In the course of the remarks which I am about to offer, I may feel compelled to make some observations of an unfavourable nature; but I trust that

the motives which have prompted me to point out the defects in the present system of management will be sufficiently understood to render any explanation unnecessary; and that they will be received with the same friendly spirit in which they are hazarded, and which is so essential a preliminary to the adoption of more efficient measures.

Dum Dum possesses no advantages of site to warrant its selection for the head-quarters of so large a body of troops as that which invariably compose its garrison. Policy of course requires that a force of this nature should always be within call of the metropolis, but at the same time so far removed from the emporium of trade as not to interfere with the peaceful pursuits of commerce; but a more favourable site, and one equally near the seat of government, might have been found. There are numerous lakes and marshes in the neighbourhood of Dum Dum, which in the season of the rains communicate one with the other, thus forming an uninterrupted sheet of water of many miles in extent. The highways are sometimes impassable, and in order to render them as dry as it is possible, deep ditches have been cut on either side, to enable the water to run off

more readily. It is necessary to be extremely cautious in riding or driving over these thoroughfares at night, the water in the ditches being frequently even with the road, to which it bears so strong a similarity in appearance, that unless the utmost caution be taken, the horse and the rider may be precipitated into a mud bath of a very disagreeable nature.

The public buildings at Dum Dum are constructed of brick masonry, and no expense has been spared by the government to render them comfortable.

The mode of recruiting in England for the Company's army, upon the whole, is, perhaps, as fair as any system of the kind can be made consistently with the necessary regard to the object in view—for without allurement of some kind, the eloquence of the serjeant would most assuredly be exerted in vain. No force is employed, and up to the moment of taking the bounty, the neophyte is permitted the free exercise of his own judgment. He must, however, in nine cases out of ten, be induced to enlist in consequence of flourishing statements respecting the riches and distinction which are said to await the adventurer

who fights in the ranks of the Indian army; and although the injurious effects of these illusions are not apparent at first, they develope themselves at a very early period. Every observer of human nature will allow, that no disappointment is more bitter than that which follows the downfall of expectations too rashly cherished. When a misfortune occurs which no human foresight could foresee or prevent, it is easily borne, because self-reproach is not added to the pain. Willing dupes to assurances to which at the time their own inclinations rendered them anxious to give credit, these men in their subsequent despair complain that they were taught to believe that they were going to a land overflowing with riches of the most ready attainment. Amid those who enlist into the India Company's service many are men of superior attainments; and some there are who even possess scientific information. These persons, either in consequence of misconduct or adverse circumstances, have been compelled to relinquish the profession or calling for which they were originally intended, and are driven by their necessities to the ranks of the army. Nothing can be more painful than to listen to the bitter expressions with

which these men lament over their misfortunes, and what they, with some appearance of justice, term their wrongs. With dispositions already soured by disappointment, they are unwilling to submit to established discipline, or those regulations which their new situation renders essential. No representations of the necessity of the measure will reconcile them to the restraint of the barracks; and with few exceptions, decayed gentlemen, and broken-down tradesmen, are found to be a troublesome, unmanageable set. In many instances they become malingerers. This leads to reprimand, and perhaps, eventually to punishment of a severer nature. A fatal consequence is frequently the result. Should the inclination not have shown itself before, these misguided persons have now recourse to drinking; and when a man in India once falls into this habit, he is lost; for a drunkard in this country can never be reclaimed. Punish him as much as you please, it will scarcely work a temporary reform; and in spite of intimidation, he will pertinaciously pursue his course. The effects of many days' intoxication under a burning sun are sometimes most appalling. A furious delirium (*delirium tremens*), unprece-

dented in extent in temperate climates, is here not unfrequently the result of drunkenness. One case of this kind has made an impression on my mind which never can be eradicated. The soldier had been admitted into the hospital while labouring under *delirium tremens*. Having absented himself from the barracks during several days, he had pawned his uniform to purchase liquor, and was discovered at length in a neighbouring village, lying on the ground perfectly insensible, and in a state of brutal intoxication. The sun was glaring on his body, which was only covered by a shirt. He was brought as a prisoner to the hospital, and though delirium had commenced, it was not then of a nature to require personal restraint; a strong and powerful dose of opium being considered necessary, was administered.

In the course of the day four men had died in the hospital, and their bodies were deposited on tables in a detached building, waiting for interment. In the middle of the night I received a hasty summons from one of the serjeants, requesting my attendance—the patient of whom I have spoken having broken out of the ward, gone naked across the yard, and burst open the dead-house door, which he had

closed after him, barricading it on the inside with the tables on which the corses of the deceased were lying. I hastened as fast as possible to the spot, and when I arrived, I found him apparently in close conflict with the dead bodies of his comrades, at the same time uttering the most dreadful imprecations that language can afford. Hearing us talking outside, he vowed certain death to any one who should dare to molest him. Knowing the herculean strength which men labouring under this disorder possess, I directed the whole of the hospital establishment to be collected, when it was determined to burst the door in simultaneously, and so overpower him before he could possibly do the party any injury. A rush was accordingly made, and in the door went, with the assailants tumbling pell-mell over the living and the dead. A light was immediately brought, and the maniac secured. It required six men to carry him back to his bed, where he was effectually prevented from doing further mischief, by means of a strait-jacket. Under four and five-grain doses of crude opium, repeated at short intervals, this man ultimately recovered.

In fitting out recruits for India, no expense is

spared: the passage and outfit are computed to cost the home government 100*l.* for each man. On arrival, the soldiers destined for the artillery regiment are always marched to Dum Dum; while those for the European infantry regiments remain in Fort William, until a favourable season arrives for their transmission to the interior. Notwithstanding that the force at Dum Dum is supplied with so many hale and strong young men, the decrement of human life there is always great.

This loss of life I cannot but attribute, in part, to the system pursued towards these men on their arrival; and a more prompt and efficient arrangement would, in all probability, bring down the ratio considerably. It should be borne in mind, that there are two systems of economy,—the economy of saving, which is mere retrenchment; and the economy of profitable expenditure, which is laying out a capital to produce an advantageous return. If we may judge from their acts, the former of these systems appears to be better understood by those who direct the helm of government in India, than the latter; and, in the instance before us, we find that, for the sake of saving a trifling expence in

providing an efficient establishment for the purpose of affording these men an immediate supply of necessaries, many are consigned to an early and premature grave. This error in judgment we may hope only requires to be noticed to meet with immediate attention. I speak now of what fell under my own observation, and I am not aware that the system has been since changed. A ship is reported from Europe with recruits; notice is immediately forwarded to the commandant at Dum Dum, a distance of five miles; a subaltern officer is ordered in with an escort to receive them. They commence their march from Fort William, generally about five o'clock in the afternoon, at which time the sun is still high, and very hot.

The party of recruits arrive fatigued and hungry; but as yet no arrangements have been made for their accommodation. It is true indents have been made out and furnished to the proper authorities, but the commissary lives at Barrackpore, a distance of thirteen miles, and it being a cross-road, there is no post; the letters have therefore to go first to Calcutta to be conveyed to Barrackpore, and when the officer gets them, he has to adopt a similar

channel of conveyance in the transmission of his reply. By this means I have known the greater part of three days consumed; and all this time the men are without their regular bedding and rations,

"Waging against the enmity of the air, necessity's sad pinch."

What is the consequence? Fruit, and trash of every kind, are substituted for wholesome food, and the lime-floor of the barracks becomes their resting-place. Thus exposed, they are seized with some severe distemper; and if the cholera be prevalent, they are oftentimes carried off ere they have learned the first rudiments of their drill. Surely, then, the dictates of humanity, setting aside all other considerations, call for an immediate alteration. An officer should be nominated to reside on the spot, with power to furnish from the government stores the necessary supplies, instead of the management being delegated, as it now is, from one person to another, till at last it is frittered away and lost in irresponsibility.

Drilling recruits to a late hour in the morning is certainly pernicious; for the oblique rays of the morning and evening sun in the tropics, exert a

most baneful influence on the European brain. It is the exciting cause of many fatal diseases. Unfortunately, this must happen to a certain extent, for the mornings and evenings are the only periods, during a large portion of the year, in which any exercise can be carried on. The practice, however, of keeping the men out till eight o'clock in the morning, is by no means necessary; and dismissal at seven would be highly salutary. Unlike any other country, no in-door arrangements, compatible with the due observance of order and discipline, can be made in an Indian barrack for the amusement of the men. They are driven to all sorts of shifts to dispel the tedium of the long tropical days; and from the want of something to occupy their minds, they grow discontented, and fly to liquor.

Those who have passed much time with European soldiery, cannot but be struck with the hasty ravages which disease makes amongst them. Ten years, at most, suffices to render them the almost constant inmates of the hospital,—victims to those scourges of the country, hepatitis and dysentery. Should they survive to raise a progeny, their inferiority is stamped in their appearance; and three, or at most, four

removes are sufficient to destroy all the leading vestiges of their northern character. Need I point to the living witnesses of the truth of this assertion? Who, without being told, could suppose that the wretched creatures we see creeping about Calcutta were Portuguese derived from athletic forefathers? Born invalids, these men cease to exist at the ordinary age of vigorous manhood; their intelligence is degraded with their organization,—it partakes neither of the lively energies of youth, nor of the sound judgment of mature age. Votaries, as their Moslem neighbours are, to a blind fatalism, they declare that they have voluntarily submitted to their fate; and to reason with them is only to call down their severe and deep disapprobation. Can we be surprised, then, at European parents showing such solicitude to have their offspring conveyed to Europe, to avoid the withering influence of such a climate*?

* It has often occurred to me, that the establishment of a respectable seminary in the Himalyas, either at Simla or Missouree, would be attended with the happiest results. Parents would then have their children comparatively under their own eye; at any rate, they would always be within reach. The ruinous expense

Among the lower animals, this degeneration, arising from the influence of a tropical climate, is still more striking. A visible deterioration is not only perceptible in the first generation, but even in the parent stock itself. European dogs, sheep, horses, and bullocks, all suffer alike; and were it not for the moral energy we possess, there is nothing in the structures of our frames to render us less exempt than cattle from this rule of nature. It is very clear, that, however strongly we may strive against physical depressants, we must in the end be content to give way. Moral energy, whatever its standard may be, must yield to physical influences, and be regulated by corporeal frailties; although we are for a time able to resist the power of external causes, as Sir Joseph Banks and his friends did, when they got into an oven, heated to so high a temperature, as to admit of a joint of meat being baked in it while they remained; yet, had they prolonged their resi-

they now incur in sending them home would be avoided; and the climate at either of these mountain stations is equal, if not superior, to any part of England. The only possible objection there could be made to the encouragement of such schemes, is strictly a political one, which the early history of more than one independent state will serve to illustrate.

dence in this heated atmosphere to an indefinite period, the mental or moral energy which enabled them to endure this heat with impunity, would have given way under the continued relaxation and exhaustion of the animal frame. The '*mens sana in corpore sano*' of Juvenal, has been a law of nature from our earliest birth; and it is surprising that people can be found to insist on the converse of this, and maintain that moral energy can control corporeal vigour sufficiently to carry a white man and his progeny unimpaired in their specific qualities through a permanent residence in a tropical atmosphere.

The liberal footing on which the military hospitals throughout Hindústan are placed, reflects great credit on the government. No expense has been spared to render them as commodious and airy as ingenuity could devise; and the medical officers have always at command an efficient establishment of subordinates, as well as an abundance of stores. The Dum Dum European hospital is a spacious building of one story, surrounded by an inclosed verandah, having glass doors and Venetian blinds. It is divided into four wards; and, allowing

three feet and a half for each bedstead, with an intermediate space of three feet, will accommodate fifty persons in each ward. In times of inordinate sickness, the verandah-rooms are also used. The average number of sick in hospital, is from 90 to 100, the force being computed to average 1500. Until the year 1829, the soldiers' wives, when sick, were taken into small corner rooms in the large hospital, but now a separate building has been erected for their accommodation. Each of these buildings is surrounded by a high wall, forming a neat and spacious inclosure, within which the necessary out-offices are built—consisting of the different residences for the apothecaries, stewards, apprentices, hospital-serjeants, kitchens, store-rooms, &c. Lest it may be deemed derogatory to class apothecaries with hospital-serjeants, I beg to observe, that apothecaries attached to the public service are strictly what the word implies—compounders of medicine. They hold warrants instead of commissions; and their duty is to accompany the surgeons in their visits to the hospital; to superintend the compounding, and subsequent administration of the medicines; and perform all the

minor operations, such as bleeding, dressing wounds, &c.

To each of the hospital-inclosures there is one gateway, at which two sentries are posted; and at night it is sometimes found necessary to plant sentinels at different parts of the inclosure, both inside and out, to prevent the patients from stealing out and receiving pernicious articles, such as tobacco and spirits from their friends, who oftentimes, under cover of the night, come to some remote corner, and throw their bundle of "little comforts" over the wall to their comrades, who are in attendance on the inside to receive them.

The practice of the Bengal artillery is considered to be unrivalled. The months of December, January, and February are devoted to it. Throughout Hindústan the outpost detachments are called in, and concentrated at the head-quarters of each division. During these cold weather months, the artillery camps present an exciting and animated scene. At Dum Dum the fog often lies so thick on the ground as to effectually prevent any object being seen at a distance; and, when this happens, the men are obliged to be dismissed from

parade for the day. During the forenoons, the young officers attend in person at the magazine, to superintend the adaptation and cutting of the fusees; and the accuracy of the explosion of their howitzer and mortar shells fully attests the nicety of their judgment on these points. I have known the flag-staff struck twice in a morning, and on a review day, the mine fired at the first shot.

On the first introduction of Congreve rockets, great success was anticipated from their use in Indian warfare, but experience has amply shown their inapplicability. They were fully tested during the period of the Burmese war, but proved a total failure. A high temperature seems incompatible with the due preservation of the materials which enter into the formation of these missiles, and the rocket troop despatched on service into Burmah did little or no execution. On firing a train of fifteen or twenty rockets, it was found that two-thirds would burst on the spot, and out of the remaining third not more than four would take the desired course.

I was an eye-witness to a circumstance corroborative of this fact, which might have been

attended with the most serious consequences. It was on the occasion of the annual review at Dum Dum. The major-general and a large retinue of staff and regimental officers were in the batteries, in order to witness the discharge of a flight of rockets. About two dozen had been laid, and the party were standing a few yards in the rear of them. On being fired, some instantly exploded, others took a retrograde direction; and out of the whole only five kept the proper course. Some stuck in the ground, half way; two or three went off diagonally, and one struck a poor boy and killed him. The rocket troop has since been broken up. The sea air was thought to exercise an injurious effect on the compost, and attempts have been made to manufacture rockets in India, but, as far as I can learn, with no better success.

On their arrival in India, artillery officers are stationed at Dum Dum for two or three years, to be under the vigilant eye of their commandant. By a residence at head-quarters they have opportunities of confirming their theoretical knowledge by means of practical illustrations; consequently, when called upon to command a detachment, they

feel themselves, if I may so express it, armed at all points; and no one who has enjoyed the society of these officers long, can fail to be struck with the high degree of mental acquirement which they evince.

CHAPTER II.

Palankeen conveyance—Post-office arrangements, and Batta question—Shock of an Earthquake—Incidents on the Journey—Ganges at Rajmahal—Ruins—Personal conflict—Singular instance of prejudice in a Hindú—Passage through the Jungles—Singular habitation—Hospitality of Indigo Planters—Paliàpúr—Birds of the Rajmahal Jungles—Wild Animals—Bees.

LONG after the British conquests had extended into Upper India, the great road to the interior lay along the banks of the Ganges. Subsequently, two new lines have been cut, by some called the great military road, by others, the new road,—both leaving the river far to the right. The old road has now become comparatively deserted. Upon my departure from Dum Dum, my duties called me first to Berhampore, and afterwards to Cawnpore and Keitah, in Bundlekund. The former of these places is a large military cantonment, contiguous to the city of Moorshedabad, and is the first station of the kind we meet with, after quitting the vicinity of Calcutta.

Previous to commencing the narrative of this journey I wish it to be understood, that it is not my intention to confine myself to an enumeration merely of the villages and towns I pass through, with their relative distances from each other; but to introduce, as I go along, such collateral information connected with the country as I think calculated to prove novel, interesting, and instructive.

To proceed from Berhampore into Upper India requires the traveller to voyage up the Ganges, or to take the old road. At the season of the year in which I was obliged to travel, people generally prefer the river to the palankeen conveyance; for it was the month of July, and at that period of the rains the road is in many places completely inundated, and all but impassable. The river passage, however, is tedious; it would have occupied three months and a half (the time a ship takes in going from England to India) to reach Cawnpore; and being very desirous to get over the journey speedily, I resolved, in spite of the numerous difficulties which presented themselves, and in opposition to the entreaties of my friends, to proceed by post in a palankeen. I, therefore, laid the dâk

for Keitah, via Rajmahal, Bhaugulpore, Patna, Dinapore, Arrah, Buxar, Ghazeepore, Benares, Allahabad, and Cawnpore, a distance of 622 miles, and for the expenses of which the post-office demanded a sum equivalent to 52*l.* sterling. The mode of travelling dâk, or post, has been described by Bishop Heber and others; I shall not, therefore, detain the reader with the detail. A palankeen is the vehicle employed; and when a person wishes to make a journey, he sends a formal application to the nearest post-master, who immediately despatches intimations to the distant stations on the line of route, announcing the day on which the traveller intends to start, and according to the intervening distance calculations are made respecting the number of days which must elapse before he can reach the limits of their particular jurisdiction, allowing three miles and a half an hour as the average rate of travelling. Every ten miles a fresh set of men are provided to take on the traveller; the usual number of men furnished being twelve—eight for the palankeen, two for the boxes, and two for the torches.

The government charge 16*d.* a mile, besides

which, a deposit, to the amount of one-half of the whole sum, is required, to meet any demurrage that may be incurred by the detention of the men beyond the prescribed time. Should no unusual delay have taken place, on reaching the end of the journey, a certificate is furnished to that effect by the post-master of the station, and the deposit for demurrage is refunded.

Eight annas, or 16*d.* a mile, which is the charge now made by the Calcutta general post-office, exceeds the positive outlay. The surplus formerly was stocked till the end of the year, and then apportioned out to the different deputy post-masters throughout the country, as an emolument of office. As these gentlemen were principally medical and military men, their brother officers were content with the arrangement, as they themselves might some time or other hope to participate in the like advantage. The only Europeans who travel dâk in India are the government's own servants; and it was very properly considered by the Company, that first to limit the scale of pay which their servants should receive, and then to attempt to make a profit by them, would be compromising not

only their own dignity, but be an act of positive injustice; they, therefore, made the surplus over as an allowance to their post-masters. The late government of India have thought proper to continue the charge of 16*d.* a mile, but have appropriated the surplus to their own use. The officers of the Company now receive their salaries at one office, and pay it out at another—a cruel refinement on that very system (the truck system,) at which the indignation of the country has been so recently expressed in both houses of the legislature. The only difference I can perceive is, that in the one case the sufferers are gentlemen, and in the other they are not. Moreover, the appointments themselves have been taken from the incumbents, without the slightest explanation or compensation, and, as if they had not already enough business for the occupation of each day, the collectors of land revenue *ex officio* have been ordered to waste their valuable time on the insignificant details of the dâk. This is felt by the sufferers to be only a minor source of grievance, in comparison to the magnitude of the Batta innovation. Whatever reasons may be urged in excuse of the former of these ungracious acts,

the latter was far too sacred to be invaded; it formed an undoubted prescriptive right, and, as such, ought never to have been touched, unless prospectively. In breaking in, as it has done, on the prescriptive rights of its servants, the late government of India has left no security for the future; it has shaken the bulwark of public integrity to its very basis, and it has left the minds of its officers in a state of restless uncertainty, which time can scarcely hope to still. They feel that the social and moral compact has received a shock which may not again be restored; and in self-defence they are obliged to withdraw that confidence in the honour and integrity of their rulers, which it is the policy of every government to uphold.

Within the last few weeks official directions have been forwarded to India, to restore the full batta allowance to the establishments at Dinapore. The error being now acknowledged, may we not hope to see the three or four remaining stations placed once more on "the old order of things?"

To a person unaccustomed to the palankeen, this mode of travelling appears singular, and may be considered very disagreeable, but it is not so; since ladies even can travel six and seven hundred

miles in this manner, with little inconvenience. With good roads, the palankeen bearers will run four, and sometimes four miles and a half an hour; but their progress was very different during my journey.

I set out on the evening of the 7th July, with the good wishes of a few friends, who had assembled to see me start. The rain had fallen in torrents throughout the afternoon, and as night advanced it poured again more severely than ever. This was a very discouraging commencement for a journey of upwards of 600 miles. Soon after emerging from the city of Moorshedabad, the road became a perfect swamp, and frequently no vestige of it could be found. After wading the whole night, we reached, about half-past two o'clock in the morning, a little rising ground, where the weary bearers found a dry spot to rest the palankeen. The day had just begun to dawn; in a few minutes a sudden and violent rustling of the trees took place, although the air remained perfectly calm; the birds roosting in the boughs began to twitter and chirp, and presently to take wing; and in another instant the ground on which we were standing shook sensibly, and, to prevent myself from falling (for, in the

confusion of the moment, I really could not stand on my legs,) I was obliged to take hold of the edge of the palankeen. The vibrations lasted for several seconds. The shock of this earthquake was felt throughout the province of Bengal, and the oscillations, as well as I could judge, extended from north to south.

As we advanced, the roads proved dry, and having had no sleep during the night, I was able to get an hour's repose. About the middle of the day I arrived at a small village, called Sooty, where we crossed the Ganges in a large passage-boat, in size and appearance not much unlike the horse boats at our ferries in England. I here remarked that, to save the labour of walking, and at the same time to consult the wishes of their amphibious flock, the cowherds pursued the practice of their namesakes on the Indus, and allowed their buffaloes to float down the stream whenever occasion called for them to move in that direction. It is by no means an uncommon sight, during a hot burning day, when travelling on the banks of the Ganges, to see the heads, and sometimes only the noses, of a herd of tame buffaloes moving along

in their favourite element: one poor animal, less fortunate than the rest, being doomed to bear on its brawny back the swarthy limbs of its boisterous master. The aspect of the country hereabout is open and cultivated. The husbandmen were out attending to their crops, and watching their flocks and herds; they were all, with the exception of a waistband of cloth, naked. The day had been very fine, and as the sun went down, I was gratified for the first time since my arrival in India, with the sight of distant hills. To some this may appear a very trivial circumstance, and unworthy of notice; but it is only after a residence in an extensive flat country, that the pleasure the eye derives from a burst of mountainous scenery can be duly appreciated. To me, I know, it was a source of peculiar pleasure, and I doubt not it has been so to others. I alighted from the palankeen, and walked for two miles, that I might the better enjoy the beautiful outline in the distance. A sepoy, whom I met upon the road, gave me a wretched account of the state of the roads. He came from the very place to which I was destined, and had been seventy days marching down. Journeying

on, at midnight I reached a large bazaar, near to an old and extensive fortification called Oodanullah, where, in 1764, a desperate conflict took place between our troops, under the command of a Major Adams, and those of Cassim Ali Khan, the Nawaub of Bengal. Here we stopped. I alighted, and found myself beside the house of the thannader, or police-officer of the place. He was very attentive, and soon brought me a chair, and a board to put the feet on, as the ground was very wet, and a heavy dew falling. I prepared a glass of brandy and water, and having lighted a cigar, fell into conversation with the man.

He invited me to walk into his little thatched hut, but I preferred the open air to inhaling the vapid atmosphere of his dormitory. "Did I not know the dislike which his countrymen entertained to the use of spirit, I should have invited him," I said, "to partake of some of the brandy with me; as it was, I feared it would be anything but a compliment to ask him to take some." "I was right," he replied; "the use of ardent spirits was strictly prohibited, but as a medicine, he felt he could conscientiously use it; and if, in my great kindness, I would condescend

to bestow a small quantity on him, he would carefully preserve it for a day of sickness." In a short time the moonshee of the village arrived, and both these men begged that I would remain where I was till the day should dawn, as the road about two miles on was impassable in the dark, and highly dangerous. After a delay of an hour or two, I started, and, when fairly on the road, I overheard the bearers saying to each other, "The thannader will get drunk before the night is over." I had given him nearly half a bottle of brandy, so I fancy they must have known his character.

My informants were correct regarding the state of the "Oodenullah pass." It was one sheet of water; and with the additional aid which the light of the morning now afforded us, we could scarcely make our way. The road runs round the scarp of a hill, along a deep swamp, over which Sultan Shuja, the unfortunate brother of Aurungzebe, erected an elegant bridge. On emerging from "the pass," we began by a winding road to ascend the hill leading to the venerable city of Rajmahal, which we reached at seven o'clock in the morning. Rajmahal commands an extensive and charming

prospect, over an undulating alluvial plain. In the vicinity of the ruins the land is argillaceous, but in the interior of the district, more especially towards Beerbhoom, it is a rich calcareo-arenaceous soil, and under constant crop; whereas, about Rajmahal it is not unusual to allow a field to remain fallow for a year. The date-palms (cajure), mahuyas, and cane, are here all cultivated for their saccharine juices.

At the foot of the hill on which the remains of the city stand, the Ganges is seen in all its grandeur. After traversing a tract of 2000 miles, it here goes bubbling and eddying along, and soon after bursts into its estuary branches. But majestic though it be, it is only a quarter the size of the mighty Indus. According to the account of that enterprising traveller, Lieutenant Burnes, we find that at Tatta, on the Indus, which is the best point of comparison with Sicklygully, near Rajmahal on the Ganges, that 80,000 cubic feet is the amount of water discharged per second in the month of April, at the former of these two places; while, according to the experiments of Mr. James Prinsep, only 21,500 cubic feet is discharged at the

latter place in a corresponding period of time and season.

Ere the proud flag of Britain floated on the shores of Bengal, Rajmahal was the residence of the chief of the province, and was rich in every department of oriental grandeur. The palace of the Emperor Jehangeer arose here. Now a heap of ruins marks the place of its former magnificence. The masses of columns, the half broken arches, and the decorated tops of temples and houses, overgrown with grass and weeds, but too clearly indicate the splendour of by-gone days. I had not time to examine the ruins as I could have wished, and now merely write from what I observed as I passed along. Considering the powerful effects which a tropical atmosphere always exercises on buildings, these remains are in a good state of preservation. Various surmises have from time to time been offered to account for the great durability of ancient Asiatic masonry. Among the whole catalogue, I am not aware that the inspissated juice of the sugar-cane (called in Hindústan, gúr, or jaggree) has been properly considered. It is a current belief among the masons of Hindústan, that

the gûr adds greatly to the strength of cement. To whatever cause it may be owing, certain it is that the masonry of India is wonderfully strong and durable. The stone masonry, which the Europeans adopt for cheapness, though good, compared with the fragile buildings we see run up in London, is much inferior to the pucka of the natives.

Ali Verdy Khan was the last prince who resided at Rajmahal, and in 1742 he removed the seat of government to the city of Moorshedabad, which is farther down the river, and consequently nearer Calcutta. Many conjectures have been offered to account for this step. To keep a more vigilant watch over the actions of the English, who, it is said, he much feared, and that he might at the same time prosecute more efficiently the war with the Mahrattas, who were then fast rising into power, and making successful inroads into his dominions on the Cuttack frontier, appear the most plausible.

At Rajmahal I was supplied with fresh palankeen-bearers, who I hoped would prove more efficient than their predecessors, but they also broke down before they had carried their burthen two miles, and

I was compelled to get out and walk, although the sun was scorchingly hot. The road lay along the foot of the hills, which I alluded to as having seen two evenings before. When in the middle of a large moor, which is often overflowed on any great inundation of the Ganges, the party altogether stopped, and refused to go on. I was then obliged to have recourse to force; and, in spite of their being twelve to one, a sharp application of the back of a sword soon brought them to their senses. I was kept out in this manner the whole day. No words can adequately convey the mental as well as bodily suffering which an European endures when exposed to an Indian sun for hours in succession. While its fierce white heat scorches up Nature's vitals, no part of the animated creation seems to breathe, or move, or live, save those feathered scavengers, the vultures and kites, whose screechings serve only to break in on the melancholy stillness of the day, and make the solitude more unbearable.

The hills of Rajmahal, and the Jungleterry district contiguous to them, have never attracted a greater degree of public attention than they now do. Recent researches have led to most valuable

mineral discoveries; and should the canal ever be cut, on the feasibility of which the government have ordered some engineer officers to report, the resources of this *terra incognita* may prove as inexhaustible as they are valuable. At present, the country for miles presents one mass of woody jungle, and cannot be turned to profitable account by any ordinary land conveyance. The plan contemplated, is to intersect this portion of the district by cutting a canal from the right bank of the Ganges, above Sicklygully, to the junction of the Bangruttee and Jellinghy (two of its estuary branches).

In the evening I reached the end of the stage (Sicklygully), with men and master equally exhausted. On putting down the palankeen at the chokee, or station-house, one man threw himself on the ground, and I left him all but lifeless; I had a few medicines with me as well as brandy. I prepared what I considered proper for him, but he would not touch it, because it was in a vessel I had used (a tumbler); so strong is the Hindú prejudice of caste, even in death! By no persuasions could I overcome it in the present instance; and

finding those about him of a caste different from his own, he equally refused their proffered aid. I was here unfortunately provided with only six bearers instead of eight, two having run off from the station-house during the day. As soon as the torches were kindled we started for the night. I was now about to enter a dreary tract of country,—the impenetrable belt of Rajmahal jungle. Had the men who were supplied to me been regular palankeen-bearers instead of coolies, I should have reached Sicklygully at noon, and then I should have entered the jungles during the day. As it was, the burning hot day was succeeded by an overcast sky, accompanied by small rain.

I soon found that my cup of misery was not yet completely filled. Scarcely had we entered the thicket, than we were deluged with myriads of insects, attracted by the glare of the torches. Eyes, mouth, ears, and nostrils, being alike objects of curiosity with these unwelcome visitants. This was bad enough; but in the course of a short time, on came a shower of flying-bugs, and in an instant our persons were throughout covered with these detestable creatures. As for myself, I was nearly suffocated;

compelled to keep the doors of the palankeen open to carry on respiration, these insects came over me in hundreds, emitting an odour altogether indescribable. If they were not in size such as those which Madame Marian describes in her entomology of Surinam, their number more than supplied the deficiency; and a night in the Rajmahal jungles, in the season of the rains, is a fit abode only for those persons whom I have heard deliberately assert, that a dozen bugs tied up in a handkerchief and squeezed, make the richest of perfumes. Fortunately I had some cigars, and by keeping up a continued volume of smoke from them, I succeeded in deadening this "richest of perfumes" to a certain extent.

For the two following nights I was doomed to suffer similar torture. I believe I never hailed the approach of dawn with more delight than I did on this occasion. The road lay through the midst of a woody wilderness. Nothing was to be seen on either side the path but impenetrable brushwood and trees; not a sound was to be heard throughout the day, save the occasional croakings of a frog, or the hum of some passing insect—everything else was as still as death. The atmo-

sphere seemed stagnated and steaming with moisture; not a breath of air arising to dispel the pestilential closeness.

About the middle of the second night in the jungles, the bearers, to my surprise, stopped opposite an odd sort of erection, and, by their conversation, I perceived that they were talking to some one. Immediately inquiring concerning our whereabout, and alighting from the palankeen to make my own observations, a voice in the dark announced himself as a police-officer, under the appellation of "thannadar of the jungles." This worthy had, by this time, come down, and announced his official character, with a dignity of manner which at once convinced me that he felt proud of the distinction; so fond are all classes of natives in India of a little authority. "He was happy," he said, "to inform me, that his *machaun* had been erected by *Feel Sahib*, who possessed an indigo factory about ten miles farther on, at a place called Palyapúr, and that through the great kindness of that gentleman he had been honoured with the appointment." This *machaun* was constructed of four stout bamboos, driven into the ground, and united by means of cross pieces,

like the staves of a ladder; on the top, strong pieces of bamboo were laid along and covered with a coarse mat; over the whole was perched a hut-shaped roof, made of reeds and broad leaves, sufficiently large to admit the man and his bedstead.

He crept up to the top, where his charpoy, or bedstead, was placed, and there he slept, descending at intervals to cook his food. To keep him safe from the wild beasts, which abound in the neighbourhood, this cock-loft style of building had been adopted. The object in placing him in this situation was purely a philanthropic one—to assist, in case of need, any suffering traveller.

So slow was my progress, that I did not reach the indigo factory till ten o'clock in the forenoon. I had now been out four successive nights, and, with the exception of some weak brandy-and-water and a few biscuits, had tasted nothing: the supply of cold chicken, tongue, &c., with which my friends were so kind as to furnish me, became tainted in a very few hours, and I was obliged to throw all away.

Indigo planters are proverbial all over Hindústan for their hospitality; and nothing can offend them more than the circumstance of a traveller passing

their houses without calling. Under the circumstances in which I was placed, I made no hesitation in going up at once to the bungalow. I found that the proprietor was absent; he had gone his morning ride over the plantation, and had not yet returned. I set about arranging my toilette as speedily as possible, and when I had finished, the table servants, as if anticipating my wishes, offered to bring in the breakfast. I had not a moment to lose, being, as it was, far behind my time; and although the planter was an entire stranger, a moment's consideration decided me—I desired them to do so, not doubting that when he returned he would readily pardon a liberty apparently so unwarrantable. While the servants were preparing the breakfast, I wrote an apologetic note to leave on the table, in case I should have departed before the master came.

I had finished the second egg, and was preparing to start, when the planter galloped up. Reversing the customary order of things, I hastened to receive him. A moment's explanation was sufficient. He was delighted to see me, for no European had approached his abode for six months, and

the sight of a fellow-countryman once more was particularly cheering. He inquired how he could best serve me; and an order was immediately given for six or eight men from the factory to afford their aid in conveying on the boxes. We remained chatting together for more than an hour, and then parted with mutual good wishes for a continuance of each other's health. Circumstances like these make a lasting impression; and for the kindness I this day received I shall ever feel deeply grateful.

I started quite refreshed, and soon found myself again surrounded by jungle: the day was insufferably hot and dreadfully close. It was necessary to keep the doors of the palankeen wide open, to benefit by the little artificial draught of air created by the movement. And as I lay stretched out, journeying slowly on, under the shade of a wide-spreading shrub, I fancied that I perceived a tiger, but the glance being a transient one, I could not positively determine. To have hinted it to the bearers would have been madness, they would instantly have dropped their burden and started, so I was content to watch with the most intense anxiety any attempt that might be made to steal upon us from the rear.

However, he never came. The animal was in a crouching position, and appeared to me to have his head towards the path. Probably our escape is to be attributed to the glaring sunshine, and the consequent laziness of the brute.

This was my last day among the habitations of wild beasts. The following morning early, I finally emerged from these loathsome jungles, and once again entered into what may be called the abode of man. How an indigo factory could ever be established at such a place as Palyapúr, is to me astonishing; and how any European can be found to live there, still more so. It is an oasis, if I may be permitted the expression, in the midst of a dense jungle; and no human frame can possibly bear up long against such a hot-bed of malaria. Never was the motto over the gate of Dante's infernal region more applicable; and to every poor wretch who should take up his residence at Palyapúr, I should say, "Who enters here leaves hope behind."

It is much to be regretted, that the pestilential air exhaled from all extensive tracts of tropical jungle, should form an almost insurmountable barrier to physical research. The results attending every

effort yet made have been so disheartening, that too much praise cannot be bestowed on those whose zeal in the cause of natural history still tempts them to brave the dangers of the forest. Here I cannot omit an allusion to the severe loss which science has sustained by the death of Mr. John Leslie, whose persevering application to zoological research has been rarely if ever equalled. Every leisure moment that he could snatch from his medical duties he devoted to his favourite pursuit; and while at Cawnpore, he despatched to Scotland no fewer than three extensive cabinets of prepared animals. In 1830, the surgeoncy of the Political Agency on the eastern frontier became vacant by the melancholy demise of Mr. Beadon, who was killed by a poisoned arrow in an engagement with the Cossyah people, and the appointment was offered to Mr. Leslie. At a great sacrifice of comfort and emolument he accepted it, that he might enjoy the new field of research which the forests of Assam presented. His domicile was fixed on a little hill, surrounded by a stagnant atmosphere. His constitution being already impaired by the climate of India, a few weeks' application to his favourite study brought on a disease which speedily consigned him to the grave.

Ornithology is much indebted to Lieutenant S. R. Tickell, of the Bengal army, for a valuable paper contributed to the Asiatic Society of Bengal, on the birds of the Borabhúm and Dholbhúm districts bordering on the jungles I have just described. He has noticed many varieties of birds which have never been delineated either by pen or pencil before, and of which the names are necessarily of his own coining; some of these I shall venture to transcribe, as they form an addition to the stock of our Indian zoological knowledge generally, and serve as a fair illustration of the feathered tribe found in these jungles in particular. I shall omit the generic terms by which he distinguishes them, as they will be uninteresting to the general reader, and the scientific one will have more pleasure in perusing the paper at large, as it is to be found in the Journal.

Kohee Falcon (*Falco hubœcola*). This species appeared tolerably common in those immense tracts of grass-jungle which extend, with little interruption, from near the Kossai river, to the base of the Lakissinní hills, in Sutrakehaní. They perch on the ground, or on the small babul-trees which are interspersed among the jungle, occasionally soaring, with a low steady flight, over the top of the grass,

in quest of prey. They are called by the Hindús inhabiting these parts, "Shakim" and "Kohi," and are much prized by the Coles for their hawking qualifications. They are 18 inches long and 39 broad. The stomach of the one Lieut. Tickell killed, contained the remains of a mynah bird.

JUNGLE SPARROW HAWK (*Falco nisosimilis*). Frequents groves and cultivations, killed at Marcha in Borabhúm, and the stomach contained lizards.

JUNGLE HORNED OWL (*Strix dumeticola*). This bird measures from head to end of tail 1 foot 9 inches, and 4 feet 4 inches in spread of wings. It frequents the thickest jungle and deep retired dells, sometimes between high rocks and scarped hills, perching low, and passing the midday in the centre of some impervious thicket. It is, however, partially diurnal, and easily flushed in the brightest day, when it flies heavily over the underwood to a short distance, and then drops headlong into the first convenient bush. Towards twilight it emerges from its concealment, and may be observed seated with great majesty on the summit of some granite boulder, on the side of a hill, overlooking the surrounding jungle. Its voice is hoarse and hollow, and, con-

nected with the gloomy scene and hour in which it is heard, the repulsive laugh in which it occasionally vents its notes "*haw, haw, haw, ho!*" cannot fail to strike a fanciful listener with unpleasing associations. Lieutenant Tickell met with two of this species near Sisdah, in Borabhúm, probably a solitary pair; and he has placed it as a new addition to the Strix family, as it differs essentially from any yet described by Pennant, Lathom, or Hardwicke, as found in India.

JUNGLE OWL (*Strix candidus*). This species is 16 inches in length, and 3 feet 4 inches in spread of wings, frequents the long grass jungle, and passes its life almost entirely on the ground, seldom perching on the lowest trees. When flushed, it rises heavily, and drops again into the grass as suddenly as if shot. It is silent and solitary; the young keep in company some time after attaining their full growth.

LITTLE BARRED OWL (*Strix radiata*). In length 7½ inches, and in breadth 18. This variety is very common throughout the thickly-wooded tracts of the jungle mehals, selecting the largest trees for its abode, from whence it keeps up its clamorous

cries the greater part of the day. It is active, frolicksome, and diurnal, and feeds on insects.

BROWN WOOD OWL (*Strix lugubris*). In length 12 inches, breadth 2 feet 2 inches. This bird inhabits the retired parts of the thickest jungle, coming towards the edges and open parts at night. It is completely nocturnal, and in a calm moon-light night its incessant cries are heard to a great distance, resembling strongly those of a strangling cat. The only specimen seen was killed at Dhampára, in Dholbhúm.

YELLOW NIGHTINGALE or BULBUL (*Vanga flaviventes*). Length 7 inches. This sprightly bird frequents the beautiful hanging woods of Dhampára, in Dholbhúm, where alone Lieutenant Tickell met with it. It is to be seen hurrying from tree to tree, with a short repeated song, like the common bulbul. It has a slender erectile crest, which, with the head, is glossy black, merging into an olive-green plumage over the back, while the breast is an olive-yellow.

CRINIGER SPLENDENS (*Edolius*). The bill is totally dissimilar to that of the *Drongo*, with which *Irena* and *Edolius* are grouped. It is long, hooked

equally in both mandibles, nostrils denuded, and more like the bill of the *Chough* than any other bird. The chief peculiarity of this bird is a crest, composed of long recumbent hairs, which ride from the head, and fall back on the shoulders. The tail is long, and slightly forked; the ends of the outer feathers turned up in the shape of a scoop. In other respects it resembles the drongo, or shrike. The plumage is deep black, reflecting purple and black in various lights; the wings are a deep glassy green. These birds frequent the large timber trees which luxuriate in the lower portions and richer soil of the jungles; on the banks of nullahs, tanks, &c.: the cotton tree, when in blossom, is a favourite resort, where they may be seen in small parties frolicking about. The voice is very changeable, and in constant exertion, from a beautiful song to whistling, chattering, and creaking like a rusty wheel. The notes at times resemble the higher strains of an organ, and, heard in the wild and lovely scenes in which this bird is found, appear singularly striking and plaintive.

Shahmour Warbler (*Turdus macrourus*). This bird has been described by other ornithologists,

and my only object in noticing it is to remove a mistaken idea which many have, that our Indian forests produce no singing birds. The shahmour is 9½ inches long, of which the tail alone is one half or 5 inches. This bird is well known and justly prized in India for its song, which, in its native jungles, is heard in a degree of perfection, to which the notes, when encaged, can bear little comparison. It is spread throughout the jungles, and haunts the deepest glades and hollows, keeping in the centre of thickets. In the gray mornings and evenings, the notes are heard through the valleys, ceasing with twilight. The song of the shahmour is fully equal, in compass, power, depth, and modulation, to that of the nightingale. The strains sweep with a gush of sweetness through the enchanting solitudes which this bird makes its favourite resort, at times when the other inhabitants of the forest are silent and at rest; while their unison with the surrounding scenery, in which nature seems to have lavished every fantastic invention of beauty, produces an effect on the mind and ear which can be appreciated by those alone who have witnessed the magnificence of a tropical forest.

CHIMING WREN (*Motacilla cantator*). This little creature has a black crown, with a longitudinal central yellow stripe down its back, the rest of its plumage being a clear olive-green. It frequents trees in the thickest parts of the jungle, and has a loud and incessant note of "*pio, pio, pio, pio.*"

ORIOLUS M'COSHII. This is another beautiful singing bird. Its length was 9 inches. The plumage of this bird is as rich as its song. The top of the head is black, each feather edged with yellow; the forehead is yellow, throat and front of neck white, with black streaks; rest of the body yellow; the tail olive. This was the only specimen seen; it was met with in open jungle cultivation, frequenting the highest trees.

NECTERINIA SEHERIÆ (*Cynniris Gouldii*). The plumage of this little bird is rich in the extreme. Its length is 4 inches. The crown is burnished copper, with green reflections; neck, breast, and back a deep blood carmine colour. A stripe on each side the throat, from the under mandible, brilliant violet; lower part of back yellow, tail violet and green, blended with metallic lustre. This rare and elegant subject was procured near Seheria, in

Borabhúm, flitting about the low willow bushes in the dried bed of a stream. It has no song but a shrill chirp.

Hook-billed Chloropsis (*Chloropsis cæsmaryncus*). This bird is classed in Cuvier's arrangement, but, Lieutenant Tickell thinks, completely out of its place. The colour of the plumage of the body is parrot-green, with the throat, part of the cheek, and forehead, black. It has a beautiful song, and is common in the jungles, flying about in small parties. It is an excellent mocker, and imitates the notes of almost every small bird of the country. For these qualifications men cage them, and expose them for sale in the bazaars of Monghir and Calcutta.

Malabar Hornbill (*Buceros Malabaricus*). The size of this bird is as follows:—Length of bill, 7 inches; of horn or excrescence, 8 inches; from the angle of the cheek to end of tail, 2 feet 3 inches, of which the tail is 1 foot 1 inch; from tip to tip of wings, 3 feet 2 inches. The bill is yellow, with the horn black, with a broad, lateral, irregular line of yellow occupying nearly the whole of it. With the exception of the two centre feathers of the tail, from

the breast downwards the plumage is white, while all the other parts are a shining metallic black.

These are very common in all the more open and large-timbered spaces in the jungles, frequenting in preference the piépal-trees, the berry of which forms their principal food. The young continue with the parent birds for many months after leaving the nest: hence these hornbills are generally met traversing the forest in flocks of eight or ten. They are shy and wary; and the voice, loud, clanging, and harsh. The horn is not developed till after the first year, the nestlings having the bill plain, and without any trace of excrescence. These birds are never met with in the high rocky lands, nor in the barren tracts of saul-jungle, but abound in the rich meadows composing the valley of the Subonrika, where the country in many parts has the appearance of a well-cultivated English park.

Trogon Duvaucelii (*Duvaucel's Curucui*). This most elegant subject is described in Cuvier. The solitary specimen seen was killed near Dhampára, in Dholbhúm. It frequents the thickest jungle, at the bottom of ravines, and dried rocky rivulets, flying from tree to tree, with a wild querulous note,

like the mewing of the cat. It pursues and catches insects on the wing, like the muscicapæ. The stomach of the specimen Lieut. Tickell met with was crammed with them. The bright and glowing colours of this bird seem little suited to the gloomy depths which are its resort. Those abodes of everlasting shade, where the meridian sun barely penetrates the overhanging arches of vegetation, which are inhabited by undisturbed flocks of bats, owls, and night-jars, afford a striking exception to the general rules of nature, which has clothed in sombre garbs, "the birds that shun the light," by harbouring so beautiful a tenant as the *Curucui.*

DHAMPÁRA NIGHT-JAR (*Caprimulgus albonotatus*). This bird is larger than the common English night-jar, which it closely resembles. It is extremely common in the jungles, keeping in thickets during the day, and coming out, as evening sets in, to the open parts, grass plains, and corn-fields, which it skims over with a low silent flight. When on the wing it emits a low chirp, something like a sparrow. It has another very peculiar note; when seated on the top of some decayed tree, on a calm night it may be heard for a mile, sounding as if some

one was deliberately striking a plank with a hammer.

DHUDKA SWALLOW (*Hirundo coronata*). Length, 8 inches; 1 foot 1 inch across the wings. The head of this swallow is adorned with a pointed erectile crest, of a bluish clear grey. These birds fly in large flocks, but are partially met with hovering over the marshy spaces in the jungles. The note resembles the monotonous "kia, kia," of the parrot. They disappear in those regions by the end of March, but Lieut. Tickell never could trace the direction of their flight.

A great variety of birds in addition to these, met within the jungle mehals, might be added to this interesting list; but as most of them are common to the whole, or various parts of Hindústan, and have been described by former collectors, their insertion here is unnecessary. Ornithological research, which has made such extensive progress in the heart of America, Africa, and the less known regions of Australia, has, as yet, been comparatively neglected by those who have studied the productions of British India, especially in those parts which have not been more immediately located by Europeans.

Many of the most rare and beautiful birds, inhabiting the Himalaya mountains, and the adjoining forests of the Teraye, have been brought into notice by the talents and spirited researches of one or two gentlemen*. But even supposing that their exertions should make us eventually acquainted with every species found in these vast tracts, so long as the extensive, unknown, and unvisited portions of the Bengal districts remain unexamined, there would still be a wide blank to fill up. These regions are placed in a sensibly warmer latitude than the Nepaul forest; differ in soil, in altitude, in vegetable productions, and present ever to the eye an unaltered, and a peculiar appearance of scenery. They are rendered in parts uninhabitable even to the half-humanized denizens of the soil, in consequence of the influence of pestiferous exhalations, which issue more or less throughout the year from abysses overgrown by rank vegetation, wherein the light of day seldom enters. Gigantic weeds, motion-

* Mr. Hodgson, the present resident at the court of Nepaul is indefatigable in zoological research; and should he be spared to perfect his labours, the scientific world will have reason to rejoice that one so enterprising has been selected to fill such an important office.

less in a stagnant atmosphere, are never waved in these melancholy regions by the refreshing breeze; and these horrid jungles afford shelter to the rarer and wilder animals of forests, which few or no human footsteps have invaded.

The *Curucui*, or *Trogon*, noticed as affording so peculiar an exception to the ordinary rule of nature, has been said hitherto to belong exclusively to the interior of Africa, but it has been discovered here by Lieut. Tickell. The hippopotamus, also exclusively consigned to Africa, is now supposed to exist in the portion of jungle which extends into the Bhél country.

A flying squirrel, hitherto undescribed, is tolerably common: and from a casual glance Lieut. Tickell once caught of an animal, in the thick and high woods bordering the Gurum Nala, near the valley of the Subonrika, he is disposed to believe that the orang-otang is a denizen of these forests.

The wild animals which inhabit the mountains and woody parts of these provinces, are, if possible, more interesting than the birds. The noble Gaour must take precedence of all others. This beautiful animal, strange as it may appear, has never

been properly described by naturalists*. It evidently belongs to the bull species, but marked by peculiarities which distinguish it from the bison. The height of the full-grown male is generally 18 hands. A remarkable characteristic of this animal, in which it differs from others of the bovine species, consists in a thick and elevated spinous ridge, which extends in the form of an arch from the end of the cervical vertebræ, half way down the dorsal vertebræ, the elevation over the shoulders being near seven inches above the line of the spine, in which these external apophyses gradually terminate. At a distance, this ridge has somewhat the appearance of the hump common to all bullocks in India; but, on examination, it is formed of the spinous processes, and not of flesh, as in other cattle. The form of the head and horns approach very nearly to that of an English bull; and short tufts of curled hair, of dirty-white, cover the upper part of the forehead. The colour of the hairs of the

* Cuvier, in his Animal Kingdom, classes this animal under the head *mammalia*, and gives to it the name 'bos gaurus,' but enters into very few particulars, doubting that such an animal at all exists.—*Description of Animal Kingdom*, by Edward Griffiths, 1827.

skin on the body is dark brown; but, owing to the fineness and density of the coat, it assumes in the sun's rays a jet black hue, which gives to the animal, in consequence of its sleekness and generally high condition, a very handsome appearance. The legs, from the knee and hough to the hoofs, are covered with dirty-white coloured hair, much coarser than that of the body. Its legs are large and well-proportioned, combining apparently strength with elasticity. The animal is very muscular, and has great width of chest and quarters; and its legs being short in proportion to the magnitude of its body, this circumstance gives it an appearance of immense strength. A male gaour, killed on Myn Paut, in Surgoojah, was measured in the presence of the late Mr. Breton, many years surgeon at Hazeerabagh, and he states its dimensions to be

	ft.	in.
Height from the hoof to the withers .	5	11½
Length between the withers and the lower part of the chest	3	6¾
Girth	7	7
Length from the tip of the nose to the extremity of the tail	11	11¾

The gaour is gregarious; and in defence of its

young is considered one of the fiercest animals inhabiting the jungles. Mr. Breton once saw in the valley of Myn Paut, a herd of gaours with their young. He counted, he thinks, upwards of fifty, but, as the herd was in motion, he might have erred in his calculation. On Myn Paut, the haunts of the gaour seem to be in the deepest jungles in the valleys, probably from the verdure being there more abundant than in the plains. A few have been seen grazing singly, as if strayed from the herds; and in this situation they appear very timid, for they would not allow anything to approach them within musket-shot, but scampered off into the jungles the moment they descried people approaching them. The inhabitants of these wilds state, that, the animal shows great fierceness when wounded and brought to bay, as it will then attack anything that approaches it.

The gaour, if it could be domesticated, would, Mr. Breton thinks, from its size, structure, and activity, form the finest draught cattle in India. They are, however, so wild and ferocious, that it is very difficult to catch them or their young; and when the latter are accidentally taken, they cannot,

from some unaccountable cause, be reared. The inhabitants declare, that every one of the calves that they have taken, died a few months after their separation from their dams. Some years ago, a gaour calf, more than three parts grown, was caught at Jushpore, bordering on Surgoojah, and was sent as a tame buffalo by the rajah to an English officer at Hazareebagh. Mr. Breton saw the calf on its arrival, and felt confident that it was the gaour. It was as tame as if it had not been born of wild parents. For a few days after its arrival at Hazareebagh, it appeared to be well and healthy; but it soon afterwards began to loathe its food, gradually drooped and died.

Notwithstanding this failure, there is ground for the belief that the gaour might be reared and domesticated, if proper means were adopted for the purpose. There is little doubt that these powerful animals would prove superior, as draught and carriage cattle, and for the greater abundance of milk that they would yield, to the other varieties of the Bovine tribe employed in Hindústan; and they would probably repay any person who could spare the necessary time and expense in an experi-

ASIATIC SOC

ment which would render this noble animal subservient to the use of man. The gaour was evidently designed by nature for something more than a mere beast of the chase.

Although Myn Paut seems to be the principal abode of the gaour, a few are to be met with in other districts on the south-west frontier of Hindústan. They have been killed in Ramghur, Palamow, and Chota Nagpore; and they are said to exist also in Sumbhulpore, on the banks of the Mahanuddee river. The people regard them with much greater indifference than they do the wild buffalos, since the former do little injury to their crops, while the latter are very destructive. Mr. Breton has seen the gaour grazing promiscuously with the samur (a species of elk), the neel-gye, and other deer; and it is not improbable that, in immense expanses of plain and jungle, like those of Myn Paut, it might graze also with the buffalo. The gaour is unquestionably the more powerful animal of the two, and would probably attack the buffalo, were it to approach too closely the herd.

Having given as perfect a sketch of this interest-

ing animal as I have been enabled to obtain, I next come to another, the wild buffalo, not much less powerful, though less interesting than the one which precedes it. This species of animal is more numerous in Sumbhulpore than in any other of the contiguous provinces; and they do much mischief to the peasantry by destroying their crops, there being no fences to the fields to defend them from the ravages of wild animals. In Ramghur, Palamow, and Chota Nagpore, the wild buffalo is not often met with. They have, however, been seen in these districts by the natives.

The other animals which exist in the forests of these provinces, are the samur (a species of elk); two kinds of neel-gye, one very tall and of a blueish slate colour, the other a little smaller, and of a fawn colour; the spotted-deer; the antelope; the hog-deer; the *Kotaree*, a deer with four separate horns; the red-deer; and the *mirgee*, or mouse-deer, as it is called, probably from the form of its head being similar to that of a mouse.

This pretty little animal is considered to be the smallest of the deer species, being about the size of a full-grown English fox. It has no horns, is of

a greyish colour, but its legs, from the knee to the hoof, are black. It is far less numerous than any of the deer species, and is not often caught.

This beautiful creature is much better adapted for a lady's pet than the gazelle; for whatever pleasing associations we may form of the latter from the charming strains of our favourite poet, these animals no sooner get their horns, than they are apt to butt at their fair owners, and thus subject them to the danger of receiving serious injury.

For the table, the hog-deer is far superior to the rest of its species; but for its beauty and appearance the spotted deer carries away the palm. There is a fine creature of this kind now in the Zoological Gardens in the Regent's Park.

The ravenous animals of these provinces are the tiger, panther, leopard, cheeta, or hunting leopard, the black leopard, hyæna, black bears, wolves, jackals, and foxes.

There is also an animal found in these wilds called by the inhabitants Qyo. This animal appears identical with the wild dog of the Deccan and Western Ghauts, fully described by Lieut.-Colonel Sykes, under the name of *Colsun*. It

differs from the *Dhole,* in having a bushy tail; from the *Chien sauvage de Ceylon,* in its bushy tail and superior size; from the African wild dog (likened to a large fox-hound), in its inferior size; and from the *Dingo* of New Holland, in its inferior height, general proportions, and colour; while from the wolf or *Shakal,* it is readily distinguished by its superior size, length of body, size of its limbs, and by its reddish-brown colour. Under these circumstances we are justified in considering this a non-descript species of dog, and Lieut.-Col. Sykes has in consequence named it "Canis Deccanensis." * The general appearance of this dog, and the expression of its face, is very forbidding. These creatures hunt large game through the dense jungles in packs, and are considered tolerably fleet.

To one of these hunts Colonel Bowler was once indebted for a haunch of venison, which proved, after the hard run of the animal, most excellent eating. Early one morning, during a military tour in the Ganjam district, the colonel's attention was suddenly attracted by a loud hallooing and shout-

* Transactions of the Royal Asiatic Society, vol. iii. Callis rufus, subtus pallidior: cauda comosâ pendente; pupilla rotundatâ.

ing amongst the camp followers, a short distance in his rear. Imagining that they had been attacked by robbers, he galloped back and rejoined them just in time to see the termination of the chase. A fine buck antelope was observed bounding through an extensive, low, scattered jungle, dotted with clumps of wild myrtle bushes, closely pursued by ten or twelve of these wild dogs. The buck was pressed so hard by them, that, just as the colonel came up, he dashed into a small tank near the road side, but the water being shallow, with a muddy bottom, he could make no progress: and would, thus hampered, have proved an easy prey to the pack, had they not been alarmed and frightened away by the noise and shouting of the camp followers.

A gentleman once tried to rear some of their whelps, but they were so very wild, as well as shy, that he could only keep them for a few weeks. It was only at night that they would eat, and then most voraciously. In the formation of their claws they resemble more the feline than the canine species, which may account perhaps for the fact of these dogs always attacking and tearing out the eyes of their prey.

It is asserted by the natives of the Jungleterry districts, that, where the Qyos haunt, the tiger is never to be found. This, however, is evidently an error, for Mr. Breton saw one evening a number of Qyos together on Myn Paut; and some officers of the Bombay army once fell in with a pack of these dogs in full chace after a wild buffalo, near the hill fort of Asseerghur; both places being so infested by tigers that the people who built villages on the former spot were compelled to abandon them, from the devastation which these animals committed among them, by carrying off different members of their families; and the latter being equally notorious as affording excellent tiger-shooting.

The lion, although not enumerated by the natives as one of the inhabitants of the forests of these provinces of Hindústan, has been actually seen and killed. One was shot in Palamow. The skin of a full-grown male lion was brought in to me when at Saugur, in Central India, shot by the people in the neighbouring forests. So that no doubt can exist that these animals do frequent the forests of Central India and Lower Hindústan, although they are rarely met with.

It only remains to notice the varieties of smaller animals found in these provinces. These are different species of monkeys, wild hogs, hares, porcupines, the polecat, weasel, and racoon. The pangolin is now and then seen. It is called by the natives Bajoorkit, which in the Sanscrit language implies the " diamond reptile," probably from the shape of its scales. A pangolin was brought alive to Hazeerabagh, but could not be made to take any sustenance, and it died in two days. Its stomach was filled with pebbles and bits of limestone, and not a vestige of animal or vegetable matter was apparent.

Numerous venomous snakes infest the country, and the boa constrictor has been seen. One was killed in Sirgoojah, the skin of which measured 23 feet in length; but they are far less numerous than the other varieties of the snake kind. Scorpions, centipedes, and tarantulas (Ghundeh, Bud Bukra, in Hindústanee), abound.

Several kinds of bees, differing in size and colour, are found throughout this interesting country, as well as in the Saugur and Nerbádá territories. The honey they produce varies very consider-

ably in its quality; the granulated kind, of a deep yellow colour, being esteemed the best among the people themselves; while that which is of a greenish colour, and of the consistence of thick syrup, is regarded as the worst.

The bees usually construct their combs on the thick branches of large trees, or under the projecting ledge of some lofty rock, and, when disturbed, become very formidable. In travelling, the greatest caution is required to avoid having the tent pitched, or the horses picketed, in a grove in which pendant honey-combs from the trees may be discerned, for the smoke occasioned by the servants' lighting their fires is sure to disturb the busy occupants; and a swarm of them will soon succeed in stinging the cattle to death. I recollect on one occasion, when making a tour in the Saugur and Nerbádá territories, the servants had incautiously pitched the tent in a mango grove infested with these insects. Shortly after breakfast, I heard a great outcry of "*múkkee! mukkee!*" and on running out found a swarm of bees assailing the horses and bullocks. The servants were in the midst of them, heedless of their own suffering, cutting away

the head and heel ropes of the poor beasts, so as to liberate them from their pickets in time to save their lives. In doing this two of the grooms were so severely stung that they were in imminent danger for some days—owing to the extensiveness, rather than from the violence, of the inflammatory action.

In the forests, in different places, is found a large species of caterpillar (*Bombyx paphia*), which, in its nature, resembles, in some degree, the silk-worm. This worm attaches itself to a branch of a tree, the ausun (*Terminalia Aleta tomontosa*), common to the jungles of India, and forms on it a cocoon, called by the natives koau, of the size of a turkey's egg. The tussur, which is a kind of coarse silk, is obtained from it in a similar manner to that of silk from the cocoon.

I must not omit to mention the existence of the lac insect in these forests, in which it is found in great abundance, but as I purpose in another part of this work to enter somewhat fully into the subject of lac manufacture, it will be unnecessary to give any further account of the insect at present.

I think, however, I have adduced sufficient proof

to convince the reader, that a vast field for research is afforded in these wild and nearly unexplored regions—situated too, as they are, in the very heart of British India, and full of interest to its enterprizing and speculative merchants.

In the following chapter I shall have occasion to allude to them again, in the course of some remarks on the recent military campaigns which were carried on amid their recesses against the Coles.*

* For an account of the Botanical and Mineral productions of these districts, see the Appendix.

CHAPTER III.

JOURNEY CONTINUED.

Baugulpore District—Native Character—Patna—Buxar—Native Hospitality—The City and Province of Benares—Productions—Saltpetre—Carbonate of Soda—Sugar Cane Cultivation—Superstitions—The Government Stud for Horses—Cole Campaign—Journey resumed—Allahabad—Ancient Pillar and Guns—Cawnpore and Keitah.

To resume my journey. I had now fairly emerged from the wilds of Rajmahal, and once more found myself in a country inhabited by man. I entered the Baugulpore district early, but did not succeed in reaching the station itself till two o'clock the following morning—a most unseasonable hour to alight at in any place, and particularly an Indian cantonment, since from the early hours kept by the European society, every one is sure to be in bed, and nothing raises the bile of an Anglo-Indian sooner than being disturbed while taking his rest. Under these circumstances I only remained until I procured a fresh supply of bearers and endited an

angry note to the post-master for sending such inferior men. Baugulpore is the first European station after leaving Berhampore. This cantonment has been found to be very unhealthy to the troops, and has in consequence been abandoned as a military quarter; a local corps being the only one now there, composed of a peculiar and perhaps aboriginal race of men from the neighbouring mountain fastnesses called, "The Hill Rangers." Probably the insalubrity of Baugulpore may be attributable to the impregnation of the land with saline matter, many of the wells being useless in consequence of the water holding a large quantity of it in solution.

I quitted Baugulpore at four o'clock in the morning, and in the course of the day entered the Monghyr district. I here found a very superior set of men in waiting to take me on. The same night, after crossing three rivers, I was compelled to alight and walk several miles through sheets of thin mud. Every now and then we came to a deep water-course, when the bearers were obliged first to carry the empty palankeen across on their heads, and then to return and take me over on

their shoulders. On the morning of the sixth day I fell in with a second indigo factory, where I stopped and was made welcome with another breakfast.

Here I cannot omit to mention a circumstance, which, though trivial in itself, exhibits so favourable a trait in the native character that it deserves to be recorded. Finding the bearers everywhere so indifferent and my progress so slow, I determined on lightening my load as much as possible, and for this purpose, after leaving the factory, I engaged a fisherman, whose habitation I passed, and who possessed a small boat of his own, to take on two of the boxes as far as Cawnpore, a distance of at least 350 miles. I gave this man a few rupees in advance, but took no written engagement from him, nor did I even know his name. Three months afterwards, when I had given up all hope of seeing them again, in came the boxes containing every article which had been left in them. The man had been delayed in consequence of the violence of the current, which at this season of the year is particularly strong, the river being at its height. It should be stated that a lock had been knocked from one of the boxes in its

hard encounters with the ground at the commencement of the journey, and that it was now merely fastened by a cord. The more we study the native character the more inconsistent does it appear. If at the period in which one of the lowest classes even is entrusted with the charge of any kind of property, an advance be made, he seldom or ever forfeits the confidence reposed in him by dishonesty. The custom of the pledge is universal. No matter how small the amount may be, nor which of the contracting parties gives it, the bargain is equally binding—otherwise, though made with the most solemn promises, it is deemed unratified and may be broken on account of the merest trifle. So scrupulous are the people of Hindústan in this particular, that throughout my experience in India I have known its validity fail but once, and then it was not the fault of the party who received the money. And yet in answer to common questions the most palpable falsehoods will be returned, for no imaginable reason, excepting that the individual may have acquired a habit of speaking untruths, or does not choose to trouble himself about the accuracy of his statement. No

reliance can be placed upon any information, unless it should be confirmed by cross examination, or by otherwise finding a balance of probabilities in its favour.

The same evening about six o'clock I passed through Patna. This is the busiest time of the day in an Indian city. As I moved along I found the streets nearly blocked up by the crowds of people grouped together on all sides. The wares of the shopkeepers were exposed on stalls in the same manner in which they are displayed at our fairs in England; and as no business can be transacted in the Eastern world without a war of words, the din of strife was deafening. Parties of well-dressed men were scattered about like merchants on 'Change, and possibly for a similar object. The different manufactories of silver, iron, and wood are little inferior in this city to those of Europe. And when the rudeness of the tools and the simplicity of their processes are examined, the degree of delicacy which Oriental artizans have acquired in their respective occupations must challenge high admiration. Patna, moreover, is distinguished for its manufacture of wax candles, linen, and toys.

I left the city about seven o'clock, and at ten reached the military cantonment of Dinapore, which I also passed through without stopping, taking the road to Arrah and Buxar. At a village about twelve miles short of the latter place, the rain came on so heavily that I was obliged to halt; my people being unable to bear up against its impetuosity, we took shelter under the verandah of an old but respectable looking house, and in a short time the owner made his appearance. He proved to be a master wheelwright, and seemed proud of his visitor. He had retired to rest, but hearing the clatter which we necessarily made outside, he speedily got up and opened his door. Inviting me to enter, he introduced me into a somewhat spacious apartment which was soon lighted by oil lamps. After a little delay a chair was found, and scarcely had I occupied it before two very fine young men, his sons, made their appearance, and by way of affording me amusement commenced a fencing match with short wooden swords having basket handles, defending themselves at the same time with the shields in common use in Hindústan. My admiration was excited by the

muscular development which these young men displayed.

Gymnastic exercises are a favourite sport with the people of Upper Hindústan generally, and the attitudes, gestures, and agility exhibited by these two young men, showed that they had devoted much time to its cultivation and had attained a perfect mastery of the art. I complimented them upon their performance, at which they seemed much gratified. In these exertions the youth of India strive to emulate the feats performed by their God Ram, who is represented occasionally as the Mars of the Hindús, and is said to preside over war and to direct the course of victory. Forster tells us that on a small mount to the westward of the Fort of Buxar, an edifice, said to be erected to the memory of Ram, still exists, and that the Hindús hold this monumental curiosity in a degree of estimation not inferior to that which the Neapolitans entertain for the blood of St. Januarius, or all zealous and devout Catholics for the Holy House of Loretto. It would appear that Ram, whilst a youth, made a visit to this eminence and remained on it seven days.

During this sojourn, some learned master of the science taught him the art of managing the bow, and truly wonderful are the feats recorded of his performance in after times. The least meritorious of these exploits would, if duly detailed, produce the exclamation that "Ram indeed drew a long bow."

The weather had, in the course of an hour, cleared up, and having expressed my gratitude to the good Samaritan for his hospitality, I proceeded onwards and reached Buxar soon after midnight.

The fortress of Buxar was occupied at the expense of a battle. It is now one of the stations for invalid European soldiers, who perform the garrison duties. Buxar stands upon an elevated piece of ground, and the view from it, upon a fine day, into the Benares Province, presents a scene infinitely gratifying to the senses. The eye rests on an extended plain, skirted by a broad winding river, chequered with exuberant fields of corn, groves of lofty spreading trees and large villages; the whole combining some of the grandest objects in nature, and impressing the mind with cheerfulness and content.

I recrossed the Ganges at Buxar, and proceeded

on to Ghazeepore, which place I reached amidst torrents of rain about the middle of the same day (July 14th). At nine o'clock the following morning (July 15th) I entered the Holy City of Benares. The site of this celebrated place occupies a space of about two miles and a half along the north bank of the Ganges and extends about a mile inland. Its population is computed at 632,000. Many of the houses are remarkably lofty, some of them having as many as six or seven floors. They are built chiefly with stones brought from the opposite side of the river, which to the eye bear a near resemblance to our Portland stone; the former is a little more close grained and deeper coloured. The streets in which these lofty buildings stand, are, some of them, so narrow, as not to admit of two common wheel-carriages to pass abreast, while the irregular and confined manner in which the edifices have been erected, destroy the effect which symmetry and arrangement would otherwise have bestowed on a city, which, from its wealthy inhabitants and rich temples, is entitled to be regarded as one of the first in Asia.

A confined atmosphere is a necessary consequence

of such a state of things; but in addition to this inconvenience, in the hot season, an intolerable effluvia is constantly exhaling from numerous pieces of stagnant water and the filth, which is indiscriminately thrown into the streets, and there left to rot and bake: the whole producing a rare compound of villanous smells which can only be perfectly appreciated by those who have perambulated an oriental town or city. The place abounds in pickpockets and vagabonds of every denomination. As a mere transient visit to Benares secures for the pilgrim an entrance into the Heaven of Siva, it is the resort of all who endeavour to obtain a respectable maintenance by making religion a trade. It teems with Byragees, Jogees, Fakeers, and all those other religious mendicants and fanatics, whose sole employ is to earn a livelihood by practising on the credulity of their fellows,—wretches whose audacity and insolence are only to be equalled by their indecency and filth, and whose claims to the security of a safe passport to Heaven, are based on unnatural observances of rigid austerity and disgusting bodily torture. In short, Benares is the fashionable lounge for all indivi-

duals who profess piety as a decent way of escaping the disgrace and ridicule of decayed reputation. The temple dedicated to Vishnu is regarded as one of the richest in the world.

At the distance of many miles from the city, as it is approached riverwards, the eye is attracted by the view of two lofty minars, which, with their mosque, were erected by Aurungzebe on the foundation of an ancient Hindú temple dedicated to Maha Deve*. The selection of this sacred ruin on which to construct so stupendous a Mahomedan pile, whence daily, at hourly intervals, is to be heard the Muessin proclaiming aloud to the followers of the Prophet the tacbir for prayer, in the following impressive strain: "God is Greatest, God is Greatest; I bear witness that there is no God but God, I bear witness Muh'ammed is the messenger; hasten to prayer; hasten to redemption; God is Greatest, God is Greatest; there is no God but God." And commanding as the building does

* Mahadeve, or Mahadeo, is the Goddess of the Jogu Nidru, i. e., the tranquil repose of the mind from an abstraction of ideas. It was her spirit that entered the womb of Jusodha and produced an avatar of Vishnú.

an entire prospect of the city, on which it seems to look down with triumph and exultation, must, at the time, have been bitterly harrowing to the pious prejudices of the Hindús, and appears to have been prompted to the mind of Aurungzebe solely by a bigoted and intemperate desire to insult their religion.

The city of Benares having been often fully described, it will be more advisable to offer some account of the luxurious and beautiful province in which it is situated, especially as the topography of Benares has not received the attention from recent writers on India, which it so eminently deserves.

The province of Benares lies between 24° and 26° of north latitude, and 82° and 85° of east longitude. Northward it is bounded by the kingdom of Oude; westward by the province of Allahabad and Boglekund; southward by the frontiers of Berar; and eastward by Behar. The population of the entire province is estimated at three millions, in the proportion of ten Hindús to one Mussulman in the cities, and twenty Hindús to one Mussulman in the country. The Ganges takes its course through

the province, which is also crossed by several lesser streams, as the Goomty, Caramnasseh*, &c. The superficial contents of the province are supposed to contain about 7600 square miles. The flat grounds on both sides the Ganges are about 4900 square miles, and the hilly parts 2700.

The soil of this province, generally speaking, is of a light reddish colour, of vast depth, having a greater or less proportion of sand all along the northern bank of the Ganges. It is in all respects different from that of the province of Bengal. Towards the Caramnasseh, on the south, it is often of a very deep red and sometimes a black clay. Wheat, barley, and all those grains which more immediately require a free light soil, are abundantly produced here, and, in wet seasons and in low situations, rice is also raised in considerable quantities. A striking difference between the soil of the province of Bengal and that of Benares, or indeed, I may say, to the westward of the Gogra

* The Caramnasseh was better known in former years than it now is. In "the good old times," the moment an officer crossed the stream he was entitled to double full batta as a compensation for the additional expense he was at in providing necessaries.

18615

generally, as far as the Province of Delhi, consists in the immense quantity of calcareous matter which it contains. By some persons it has been attributed to precipitation from water, as stalagmitical deposits are formed, but this view of the subject appears now to be no longer tenable, since water from the calcareous strata appertaining to the Jumna river has been found, on careful analysis, to be all but pure. The depth of the calcareous, or kankar formation, as it is termed, varies considerably in different localities.

Another remarkable difference, if we except one or two of the Bengal districts, are the numerous salt grounds and wells impregnated with salt. These are most common in the northern parts, and particularly in the north-west quarter. In some wells the water is limpid, in others it is thick, impure, and exhales a very putrid odour. The salts thus found are of three kinds — saltpetre, sulphate of soda or Glauber's salts, and carbonate of soda. The first of these being an article of great commercial value, and confined almost exclusively to the Indian soil, requires that it should be noticed somewhat in detail.

The grounds on which saltpetre abound are calcareous, and contain a large portion of sulphate of soda, besides nitrate of lime and muriate of soda or common salt.

In the month of November, which is at the close of the rainy season, and consequently after the soil has been well saturated with moisture, the native manufacturers of saltpetre commence their operations. At this time, in all saltpetre lands, this salt effloresces on the surface of old mud heaps, mud buildings, waste grounds, &c., in the form of a thin sheet like frost rind, and is carefully scraped off by the people wherever it is found. It would appear from this circumstance, that nitre or saltpetre is a secondary salt, if I may be allowed the term, and is dependent for its existence on the quantity of carbonate of potass the mud heaps, old walls, waste grounds, &c., may contain, and that *nitrate of lime* is the original form of salt whence nitre comes. All chemists will at once perceive that this may be explained on well-known chemical laws. Nitric acid has a stronger affinity for potass than it has for lime, consequently with the assistance of the rain water a solution of the salts is effected and a

spontaneous decomposition is continually going on between them — the nitric acid leaving the lime and combining with potass forms saltpetre, while any carbonic acid that then may be in excess hastily seizes the lime and appropriates it to itself.

The saline efflorescence being collected at the factories, is first subjected to the processes of solution and filtration. After forming a false bottom and laying over it coarse mats, the operator then proceeds by spreading out a thin layer of vegetable ashes, generally from the indigo plant, upon which the earth to be subjected to the filtering process is laid and trodden down level to the desired solidity. Water is then poured carefully over the saline earth to the depth of four or five inches, and allowed to filter gradually through. During the operation of boiling, it occasionally happens that too much heat has been applied, and consequently the liquor is in danger of boiling over; when this happens, the operator employs a very simple but efficacious remedy. A bunch of dry jungle grass is tied at a right angle to a thick stick; this is dipped into the liquor and then suspended over the pot. The liquor, the

grass had absorbed, cooled by the air, falls down in a shower into the vessel and reduces the temperature of its contents to a safe standard.

The mother liquor, remaining after the crystals of saltpetre have been removed, is returned to the evaporating pots and mixed with a fresh portion of the liquors from the filters, for a second boiling and crystallization. The extraneous salts, such as sulphate and muriate of soda, which the filtered liquor from the earth always contains, are partly found at the bottom of the pots (the muriate of soda in particular), and partly in the mother water, remaining after the process of crystallization is over. To separate them more effectually, the manufacturer passes the liquor from the boilers through a piece of coarse cloth placed in a basket, and when the liquor has drained through, the greater part of the extraneous salts are found on the cloth. The muriate of soda or common salt, afterwards undergoes a separate boiling, and is then sold in the bazar. The remaining extraneous salts—sulphate of soda, nitrate of lime, &c., are returned to the earth, to undergo by the hand of nature its annual decomposition. By this means the old

earth, which has already produced saltpetre, is regenerated, and rendered productive against another season. The native manufacturers are well aware of this fact, but not being able to explain it on scientific principles, they say that saltpetre generates saltpetre. A sample taken from several hundred-weight of the salt manufactured in Tirhoot under the eye of Mr. Stevenson* gave, on analysis,

Nitrate of Potass	77·9
Sulphate of Soda	9·1
Muriate of Soda	8·0
Insoluble matter, sand, and mud . .	5·0
	100

In this state it fetches from four to six shillings for 80 lbs. When it passes from the hands of the Loneahs, or saltpetre manufacturers, to the saltpetre merchants, it is frequently adulterated with sand, mud, and dirty salts of various kinds.

Carbonate of soda abounds in the Ghazeepore district, and about a mile west of the European station there is an extensive plain of it, more than a foot thick. Sulphate and muriate of soda, in small quantities, are always found mixed with it. In the

* Vide Transactions of the Asiatic Society of Bengal, vol. ii 1832.

dry season it effloresces on the surface in great abundance, and is called by the natives, *flos aseæ*, or *sudjee muttee*. Lands impregnated with this saline substance are known by the name of *assahur* lands. This deposit is not connected with any sandstone, and is thirty-five miles distant from the nearest point of the great sandstone formation (Vindya range,) of the province of Bundlekúnd.

The province of Benares produces the finest kind of East India sugar. The mould, which is found best suited for the growth of the cane in this province, is of a light yellowish colour. Stiff clay is bad, and so are calcareous and saline soils; circumstances which admit of the following explanation. It is well known that various essentials are requisite for properly elaborating and perfecting the saccharine portion of a plant, and the ground being low and marshy in some parts of this province, (the neighbourhood of Ghazeepore on the Ganges, for instance,) it retains the humidity too long. The canes, in consequence, grow too quickly; and while they appear to be luxuriant, the mucous juice on which the saccharine material depends, is watery and poor, yielding, comparatively, little sugar.

Notwithstanding the estimation in which the sugar from this rich province is held, little or no attention is devoted to the culture of the cane by the people who undertake it. From the time at which the cuttings are laid in the ground, till the period of cropping comes round, the plants are left chiefly to nature; the lower leaves are rarely pulled off, or trashed, as it is termed in the West Indies; neither hoeing nor weeding is considered necessary, but in order to preclude the circulation of air, the fields are wattled with reeds and long grass: the only attention shown by the cultivator, consisting in the irrigation of the land during the season of the hot winds. In some sugar-cane fields strong luxuriant vegetables, and even young trees, may be seen mingling with the canes; which cannot fail to injure the young plants very materially, since they have no moisture or nourishment to spare during the hot months of the year. The method employed in manufacturing the sugar is exceedingly rude and unscientific, and open to many important improvements, which European skill will doubtless soon develop. The principal defects in the system, are, firstly, the tedious process by which the juice is

expressed, and which occasions it to undergo incipient fermentation before it can be brought to boil; and, secondly, the custom of inspissating it into the intermediate state called *gúr*, or *jaggree*, before its formation into saleable sugar.

Among the endless superstitions of the natives, are some, observed by the farmers of this province, connected with the sugar-cane, which from their singularity will doubtless prove amusing.

The sugar-cane and betel plant are both regarded by the Benares farmers in a sacred and superior light. The sacred appellation for the cane is Nag'bele. On the 26th October, termed by these people Deut'han, they proceed to the fields, and, having sacrificed to Nag'bele, a few canes are afterwards cut and distributed to those cormorants, the Brahmins. According to the rules of established usage and custom, until these ceremonies are performed, no persuasion or inducement can prevail on any one of them to taste the cane, or to make any use whatever of it.

On the 25th May, termed the Desharah, a different precaution is universally taken. At this time the cane-planting for the year is over, and it not

unfrequently happens that a few canes still remain standing; for it is usual to reserve certain portions of the canes of the preceding year in the fields, without cutting them, to serve as plants for their new cultivation. Whenever this happens, the proprietor repairs to the spot, and having sacrificed to Nag'bele, as in the preceding case, he immediately sets fire to the whole, and is exceedingly careful to have this operation executed efficiently and efficaciously. The cause of this extraordinary practice proceeds from a superstitious notion of a very singular nature. They apprehend that should the old canes be allowed to remain in the ground beyond the 25th May, they would, in all probability, produce flowers and seed; a circumstance which it is supposed would prove one of the greatest misfortunes that could befal them.

The cultivators unanimously assert, that, if the proprietor of a plantation should happen to catch a glance of a single cane in flower, the greatest calamities will not only befal him, but also his parents, children, and property; in short, that death will bestir himself among his family and not cease till he has destroyed the whole. If the servant of

the proprietor happens to see the flower, and immediately pulls it from the stock, buries it in the earth, and never reveals the circumstance to his master, no evil consequences are expected to result; but should the matter reach the proprietor's ears, then the calamities before mentioned will infallibly ensue.

In support of this belief many of the oldest zumeendars and cultivators recite instances, falling within their own personal knowledge, wherein they have unhappily been witnesses of the evils and misfortunes which befel those ill-fated mortals, whose destiny led them to behold so untoward a sight. These superstitions are so deeply rooted in the minds of all the rural population, that they must have originated in a period of high antiquity.

The farmers of this province are considerably benefited by the government stud for the breed of horses. This establishment has been in existence during a great number of years, and, in conjunction with the Hissar and Haupur studs in the north-west frontier, furnishes horses to the whole of the army of Hindústan. The stables are under the management of a superintendent and numerous assistants; a veterinary surgeon being also attached

to the establishment. The number of colts annually turned out are barely sufficient to supply the wants of the cavalry, consequently private individuals, who would readily purchase them for carriage and saddle use, are now obliged to buy Cape and Arab cattle. Those who have sufficient interest to obtain them, are obliged to pay an enormous price, about treble the cost incurred by the government. Every year large batches of Arabs are imported into Hindústan for the use of the European community; but if the government were to extend their present system, which I understand can be most effectually done, not only would it lead to a freer circulation of ready money among the farmers, but retain in the country thousands of pounds now taken away by the Caubul and Arab horse-dealers. Moreover it would lead to the introduction of a superior and useful horse, for draught or saddle purposes, among the natives themselves; whereas, at present, they have nothing but an unsightly, vicious creature which endangers the life of the rider the moment he is mounted.

The present system of stud management appears the best that could possibly be devised. A certain

number of mares are distributed about to the neighbouring farmers, who have one allotted to each, on producing security to the amount of 200 rupees (£20).

The farmers are prohibited from laboriously working the animals, but are allowed to put them to gentle exercise. The stud assistants visit the districts monthly, to see that the mares are kept in good condition. The colt, when born, is kept by the farmer for one year, and is then brought to the superintendent, who, with the veterinary surgeon, determines the price to be paid to the man. This never exceeds 200 rupees—the average being from 70 to 120. This sum is a remuneration for the previous keep of the dam and foal. The colt, if approved of, is taken into the stables, and placed under the immediate care of the government officers. At the end of three years and a half the young animal is brought before an examining committee, and passed into the ranks of the army.

Should the colt or filly be disapproved of by the superintendent, then the farmer is permitted to keep it in payment of his expenses. Fillies are generally rejected. Those that are taken are forwarded

to the district of Tirhoot, as the price of corn is cheaper there than in the neighbourhood of Benares.

The entire cost to the government, of each colt, is computed to average from 270 to 300 rupees. The price charged to cavalry officers, who are permitted to take horses out of their regiment for their individual use, is 800 rupees; and those private persons, in Calcutta and elsewhere, who have interest enough to procure them, are charged 1000 and 1200 rupees (£100—£120). Now if the government would give greater encouragement to the breed of horses, and permit the superintendent to sell them for the cost price, it would, as I have before remarked, be very beneficial to them ultimately, as it would enrich the farmers, who would thereby be enabled to pay their rents with ease and cheerfulness.

Until within the last few years, the stud horses were complained of as being slight and unequal to severe work. More recently a different class of English horse has been imported, and the stock, in consequence, has greatly improved. So highly are these horses esteemed on the Madras and Bombay sides of India, that the Calcutta government have of

late received a greater number of commissions from the authorities there than they can execute. At the admission committee of the past year (1836), 606 young horses were tendered by the stud officer, and out of these 599 were admitted into the service—seven being rejected.

In addition to these, thirty had previously been set aside; and fourteen or fifteen had been purchased by private individuals, at 1000 rupees each; being in the whole 630 colts for one season. Some of them measured fifteen hands two inches high; and were distinguished for large bone and substance, with good girth and depth of chest. Their ages averaged from three and a half to four years. Ninety were under three years of age. The number of mares now attached to the Benares stud amounts to 1600.

At the Haupur and Hissar studs, the system of management is somewhat different from the one at Benares. At the two former places the mares do not remain the property of government, but are sold to the farmers at £30 each; the people are permitted to pay this sum by yearly instalments of fifty rupees. All fillies are rejected.

In connexion with this subject, I may mention a

remarkable fact, which has been noticed by the officers who have the superintendence of these establishments, which is, that the same dam will rarely have two male births consecutively, a colt and a filly being produced alternately.

It was from Benares that a part of the troops were sent, in 1832, to quell the extensive insurrection which broke out among the Coles, in the territories of Ramghur, Chota Nagpore, and Beerbhúm, appertaining to the military divisions of Dinapore and Benares. It caused the Supreme Government some uneasiness till it was quelled, and is said to have entailed an expense on them of £50,000 sterling. Among the many conflicting accounts which have appeared, it is difficult, without reference to official records, to form a correct opinion as to the cause which first led to this insurrection; from the revolt, however, being so general, there is every reason to apprehend that it originated in long and harassing oppression. In our revenue assessments and collections, such is the nature of this part of the country, we are compelled to depend, in a great measure, upon the native officers of the courts, a class of men so badly paid for their services,

that whenever the fear of detection is removed, they tyrannize over and oppress the cultivators.

Although a country of our own, and in the very heart of the empire, yet so little was known of its topography, that when the troops marched out of the beaten path scarcely a soul knew where he was The necessity for such knowledge must be apparent to all, as on it are based those operations, which, if incomplete, serve only to harass the troops, while it hazards the lives of hundreds, and entails disgrace on all.

In consequence of the want of this necessary knowledge, the troops employed against the Coles were frequently marched and countermarched very unnecessarily; while a regiment of light cavalry was required to take the field, and operate in a country intersected with ravines and covered with timber-trees and brushwood. And more extraordinary still, as if they were carrying on a war of extermination instead of conciliation, the authorities directed that every village that could be found, and every granary that could be discovered, should be immediately razed and burnt.

A slight sketch of a part of this campaign into

the extensive districts of Ramghur, Beerbhúm, Chota Nagpore, and Surgoojah, as I received it from an eye-witness, may not perhaps prove uninteresting.

" Our party left Benares to join the force already out, on the 23rd January, 1832. It consisted of a brigade of guns, a troop of the 3rd regiment light cavalry, and two companies of the 54th N. I. We got to Sheergotty all well. Then the troop of cavalry was detached with the 50th to enter Chota Nagpore by Chittra and Teeko, the others taking the great road to Hazeerabagh. The 50th had left Sheergotty the day before the cavalry came up; the latter in consequence made a forced march and overtook them. Having mounted two steep ascents (ghauts) we arrived at Teeko on the 8th day from Sheergotty.

" After taking our breakfast, and just as we were beginning to dress for the day, there was a sudden outcry in camp of ' *Cole! Cole!*' and such a confusion ensued—one running this way, and another that, that I thought they had actually got into camp, and rushed out of my tent, sword in hand, expecting to meet them at the entrance.

It turned out, that some grass-cutters had advanced about a mile in their search for fodder, and had seen a party of 'Coles.' We then got the horses saddled, and the men, without jackets, and some without caps, set off at full speed in the direction described by the grass-cutters. After a gallop of about four miles, we saw about 200 of them, making off as fast as they could. The ground was so marshy and bad that the horses could not get along, and the troopers only killed about 18 or 20. The infantry burnt a village or two, and killed about 60 more men. We then returned to camp.

"Next morning (Feb. 9th), we went out in three parties, to burn and destroy villages! Good fun, burning villages!! Did not fall in with many Coles while the conflagrations were going on. In the evening, however, a short time before sunset, about 2000 of them made their appearance. We thought this looked well, and that they intended to stand a shock; so out turned the troop and two companies. They moved off, however, at double-quick as we approached; and as the ground was unfavourable for a pursuit, the jungles being all

around us, and quite impenetrable, we were unable to ride after them.

"Next day (Feb. 10th), at noon, a multitude of 4000, by their own account, but I should say, not so many, again came pretty close. We had previously determined not to go out after them, and to appear to take no notice till they came close to us, although the troops were all the while under arms, sitting down in their ranks. We sat four hours in this way—the Coles dancing round us, by degrees approaching nearer, and all the while lustily abusing us as a set of cowards.

"At length about 100, more courageous than the rest, came within musket range, and every one anxiously listened to hear the word 'fire' given. Finding that we did not fire, they came still closer. On this, the butcher* to the force, as he had been in this part of the country before, and knew something of their language, went out of camp and made signs expressive of a desire to speak to them. They allowed him to approach; and so effectual

* This is the first time, perhaps, the Honourable Company have had a butcher as a plenipotentiary.

was the man's eloquence that they all consented to lay down their arms, and came in crowding around us; the poor wretches seemed greatly delighted at the manner in which the business had terminated.

"The next morning, a despatch was sent off to the commissioners by a native corporal, four sepoys, and a few of the people who had surrendered, but after they had proceeded about ten miles they were stopped by a *gole,* or party of a thousand men, who refused to let them pass. The report being brought in, the troop marched out to Chooreah, on the Petowreah road, where the commissioners had taken up their quarters.

"We remained at Chooreah till the 7th March. During this time we made two *dours,* or excursions; one to Silligaun, where we killed old Buggut, and got 1000 rupees for his head, the money being divided amongst the non-commissioned officers and privates. The number killed at Silligaun was greater than in any other part of the country—being about 200. Some of the scoundrels fought well with their tulwars; they did for two of our horses, and one man has lost the use of his hand.

After this affair the people for 20 miles round came in and submitted.

" I have just mentioned, that we continued at a place called Chooreah till the 7th March. On the following day we proceeded southward in three columns: the right, from Teeko to Palcote; the centre, from Chooreah to Maharaje-Gunge (at first intended for Busseeah), but were subsequently ordered to join the left column in Sompone.

" On the 21st March, the centre column joined the left column at Tugnu-Nuddee; and on the following morning, a grand *dour* was made, in which we fell in with the enemy, and a fight took place, since called 'the Battle of Runeedah.' In this great battle two of our officers were wounded. It could not be called fighting, as the insurgents kept in their thick jungles, and were scarcely ever seen. Lieutenant *****, and Cornet *******, of the cavalry, had been foolishly left with 30 men on a road flanked by thick jungle. They were nicely peppered with arrows by a large force of insurgents, who had concealed and protected themselves in the thicket. Lieutenant ***** was obliged to fall back on camp, after having had three men

and horses killed, and ten men, besides himself, Cornet *****, and 19 horses, wounded. Thirty troopers, and a company of infantry, said to be 100 strong, were left behind to protect the camp; but on turning out towards the close of the day we could only muster 50. The camp might easily have been plundered and every skin of us cut up. On Lieutenant *****'s falling back on camp we ran out a six-pounder on a rock that commanded the road, and as soon as the Coles saw it pointed towards them they sheered off.

" Altogether we lost in this affair about 20 sepoys, and the Coles have been since seen parading about with the red jackets and muskets of the slain. The men were generally cut off by straggling a few yards only from their ranks, when a dozen or twenty fellows would spring upon them from behind a thicket, cut them in pieces, and be secure in the jungles before a shot could be fired.

" After this affair of the 22nd, the Coles kept further off; our men became more careful and cunning, and few on our side were wounded. The Coles must have suffered greater loss from the fire of our musketry; although they shot their arrows

out of the jungle without presenting themselves, and we in most cases fired without seeing them, except that we now and then got a random shot at a fellow through the bushes. Several *dours* (excursions) were made by the infantry, for the cavalry were here worse than useless, on which occasions great quantities of grain were burnt, and immense herds of cattle brought in. Wet weather now set in, with awful storms of wind and rain, which put a stop to all our operations. Fortunately, about this time, the Coles thought it wise to accede to the terms held out to them; and on the 9th April, quiet being once more restored in this wild district, we countermarched to Bawmanee, to await the submission of the remainder.

"On the 18th of the month, a Singbhoom chief came in, with 500 followers, all fine looking fellows. In our tents now, 25th at noon, the thermometer stands 96° Fahrenheit—at night a blanket is far from uncomfortable; but we have a march of twenty-two days before we can reach Benares; which, including the necessary halts, will occupy us a full month. We are out of all European stores; of wines we have not a drop left; beer we have not tasted for weeks, and our brandy is done.

"The arrows these people use are most formidable weapons. The bow with the chowree belonging to Seeboo Buggut, at Silligaun, on the 22nd, we picked up after the *butchery* of that day. I have only killed one poor devil out and out myself —the fellow destroyed a pair of cloth pantaloons for me, tearing one leg of them nearly off with his battle-axe, but only scratched my skin, and not thinking of his head at the time, my sword found its way into his brains without my feeling a jar! it was so sharp. The wars are now at an end."

I now return to my journey. On leaving Benares, the next place of importance that I arrived at was the fortress of Allahabad; may I say the ancient city of Palibothra? for Mons. D'Anville, the celebrated French geographer, who wrote previous to the year 1780, seems to give the palm to Allahabad; and the recent partial deciphering of the old column at this place, now going fast to decay, called Bhem Sen's Club, has scarcely left a doubt as to the fact.

The reader is doubtless aware, that as many cities have been brought forward by modern writers, to prefer their claims to the Palybothra of India, as,

of old, contested for the birth-place of Homer. It was to the Chief of Palybothra, Chandragupta, or, as the Greeks wrote it, Sandracoptus, or Sandracottus, Seleucos Nicator, the ally of Alexander, sent the able Ambassador, who, on his return, furnished Strabo, Arrian, and others, with the principal part of their information regarding India. Owing to the persevering industry of Captain Burt and his brother, the different inscriptions on the column have been copied; and in the examination of them the names of several princes, and Chandragupta in particular, have come to light. This had led to the belief that this column is no less than a record of the great Indian potentate of that name; and Professor Mill seems disposed to lean to the opinion that the antiquity of the character is sufficiently established to render this supposition probable. However true this may be, at present the traveller may look in vain for the grand causeway so particularly alluded to by Strabo, as leading from Palybothra into the interior of the country, for not the most distant trace or vestige of it remains.

The Allahabad pillar tapers from the base to

the capitol. The shaft is thirty-five feet, and its total length forty-two feet seven inches. That part of the base, which, from its being left in a rough unfinished state, is evidently intended to be under ground, is seven feet six inches. The circumference at the base is nine feet six inches, and at the top, six feet seven inches. It bears three principal types of inscription, exclusive of the modern Persian sculpture. The Moghul Emperor Jehangér was pleased to engrave his name and descent in a belt, through the middle of the most ancient of the three inscriptions.

In the year 1826, Major Irvine, C.B., sent an estimate to the Calcutta authorities, offering to put up this valuable relic for £180 (1800 rupees); but it was objected to, on the ground of its inutility! From the interest which, of late, has been excited in Calcutta among the oriental literati concerning this column, there is every prospect of the ancient inscriptions with which its sides are embellished being completely deciphered. Had the great gun at Agra been still in existence,* much assistance would, in all probability, have been derived from

* See Appendix.

it, for its face is said to have been covered with inscriptions of a similar character; but unfortunately it has been cut up and sold.

This fine piece of ordnance had, like the pillar, a bold Persian character engraved through the ancient inscription; but it bore the name of the father (Akbar), instead of the son (Jehangér). The Persian character on the gun, for a long time led to the belief that its origin was comparatively of a modern date; but a translation, which Major Pogson was at the trouble of making, clearly shows that no part of the inscription could lead to such an erroneous inference.

My journey now began to draw near its close. From Allahabad to Cawnpore, the distance is only 130 miles. As I travelled along the road, I continually passed extensive mangoe groves. The hedges were formed of the prickly pear, and other species of the cacti family. The tillage was principally jowar, sugar-cane, and badjra. About forty miles from Cawnpore, I had the pleasure of meeting a brother officer, in whose tent I spentan hour; after which I resumed my route, and succeeded, after an uninterrupted journey of fourteen days and

nights, at the most inclement season of the year, in reaching the cantonments of Cawnpore in safety.

Here I spent two days, and then started for Keitah, then a military station, situated in Bundlekund, a further distance of 104 miles. This being the place of my destination, my travels were for a time at an end. To recount all the vexations and disappointments a traveller is obliged to contend against, on a dâk journey in India, in the season of the rains, would be to disfigure every page with lamentations. Suffice it to say, mine were over; and most heartily did I participate in the mystical "Ram," "Ram"! of the bearers, when they set me down for the last time at the door of my friend's mansion.

CHAPTER IV.

Keitah—Arrangements—Servants—Making calls—Cantonments —Insalubrity — Government Order— Soil — The Boondelas— Bad Moral Character — Culpee — River Jumna — Chillatarah Ghât,— Varieties of River Water — Professional visit to the Rajah of Chatterpore—Deserted on the Road—Introduction— Female Apartments—The Town—Sporting—A Suttee.

UPON arriving at a new station the first thing to be done is to engage servants. Previous to departure the establishment at the former place of residence generally requires to be disbanded, and, of the numerous annoyances attendant on a dâk journey into the interior, this is not the least. We become in India perfect creatures of habit, and the longer we sojourn there the more we get trammelled. Instead of finding the Sirdar and his assistants ready in attendance anticipating their master's wants and necessities in the business of the toilette, we are obliged, on reaching the end of our journey, to put up with the indifferent services of our friend's domestics — men who invariably study to do no more than they are

absolutely obliged, and who oftentimes seem to feign ignorance and stupidity for no other purpose than to shirk attendance upon two masters.

Making calls is the next important duty to be performed. If attached to the military service, the sword and other appropriate habiliments are buckled on, and, the new arrival drives off with an officer of his regiment to the commandant. After paying his respects or "reporting himself," as it is termed, he dismantles his person of all its superfluous trappings, and then proceeds, more at ease, to visit the different individuals, great and small, who constitute the society of the place. In England, as every one knows, it is customary for the stranger to wait to be called on. But in Hindústan, a different etiquette prevails, and should the new arrival be so lucky as to have a wife with him, he is required to go through a second round of visits, to return the calls which are paid by the Benedicts of the place, who bring the ladies of their families with them; etiquette then requiring that a visit should be made by the newly arrived lady in return, who is of course accompanied by her husband.

Perhaps, of all places in Hindústan, Keitah would be thought the least likely to afford social amusement, because the number of its community were few, and when this is the case it is remarked, that the tone of the society is generally vitiated. The ideas of people are supposed to contract in proportion to the confined social atmosphere in which they move; so that in the place of generosity, charity, and frankness, there is frequently nothing but personal invective, illiberality, and calumny. It was not so, however, with the little circle at Keitah — there the paucity of physical comforts, in addition to the accommodating dispositions of the people, operated in drawing the ties of sociability and good fellowship in close union, and served to form a gratifying exception to this prevalent notion that character is never safe among the censorious tattlers of small communities. How fortunate it is when a happy unanimity is found to prevail among the members of an isolated body, each being willing to contribute a part, which, however humble, assists nevertheless in producing an effective whole! I recollect that at the time I now allude to, this small station was the scene

of much festivity. How altered now! The place was always eminently unhealthy — the peaceable condition of the Bundlekund Chiefs rendered the maintenance of a force in this immediate neighbourhood no longer necessary; so to save the expense of a separate command, and at the same time to promote the favourite object of the day, that of concentrating as much as possible the military force, the troops have been withdrawn and the place abandoned.

The last commandant of Keitah was a man of refined taste and a great promoter of sociability. It was the boast at the time, that through his influence a great encroachment had been made on the established Anglo-Indian fashion of the day. Those huge dinner entertainments, at which the table groans under the weight of steaming turkeys, hams, and saddles of mutton, were made to give place to the more elegant soirée and cold refection. Bare walls, unroofed houses, and a churchyard studded with grave-stones, are all that now remain to indicate the spot, where, once, the silver strains of music burst nightly on the ear accompanied by the soft cadences of female voices.

Keitah may be adduced as a striking instance of the unaccountable neglect which seems ever to have marked the conduct of those intrusted with the task of selecting fit sites for military cantonments. The incapacity so frequently displayed in this respect, is quite incomprehensible and altogether unpardonable. The individual whoever he was, who fixed on Keitah as a proper place for the abode of his countrymen, has a heavy debt of responsibility to cancel. Upon my arrival in the month of July, the whole place was under water, the palankeen bearers wading for at least two miles through one continued marsh before they could reach the houses.

In paying the visits of ceremony, it was often necessary to walk the horse close up to the curb of the verandah, of many of the bungalows, before we alighted from the carriage, the water being more than ankle deep on the ground.

In attempting to rectify one error we generally commit another. Deep tanks were formed at certain distances, in order that the water might drain into them, as if the torrents of rain that were constantly coming down at this season of

the year would make a special exception in favour of these reservoirs, and so avoid filling them while they saturated the rest of the soil. This want of attention to the preservation of the health of the public servants at length attracted the notice of the Calcutta authorities, and in August 1823 they were constrained to issue a general order, that in every instance previous to choosing the sites for the foundations of barracks, hospitals, gaols, gaol hospitals, &c., the chief medical officer present should be invariably consulted and his advice adopted. All parties concerned being held strictly responsible for obedience to this order*.

* "Fort William, August 8th, 1823. No. 89. It being essential to the health of the troops that great attention should be paid to the position and aspect of all barracks and hospitals, it is hereby directed, that previous to laying the foundations of such buildings in all future cases, the superintending surgeon of the division, or in his absence the senior medical staff at the station, invariably be consulted on the subject, and that commanding officers shall conform to the opinion of such medical staff officially given in writing, or refer the question, should they see cause, with all documents connected with it, through the military board for the decision of government, as quickly as possible."

Government Orders by the Governor General in Council, October 10th, 1823.

"The spirit and tenor of general orders, No. 89 of 1823,

The immediate neighbourhood of Keitah is studded with low red sandstone hills,—the soil of the plains is black. Geologists endeavour to account for this singular circumstance, by supposing the latter to have been formed by the disintegration of numerous trap hills which have almost entirely disappeared. Not far from Keitah on the way to a pretty waterfall, three large rocks are seen piled one on the other, in a manner very similar to the celebrated cheese-wring of Cornwall.

At Keitah I found myself among a race of people whose external characteristics differed in many respects from those with whom I had previously become acquainted. During my progress up the country, I was frequently struck with the sudden alteration which every now and then became visible in the appearance of the people. Every one who has travelled through a strange country must have made a similar remark. Yet

regarding the opinion of medical officers in choosing the sites previous to laying the foundation of barracks and hospitals, is extended to gaols, gaol hospitals, &c., and the parties concerned will be held strictly responsible for obedience to this order."

I do not recollect ever meeting with a satisfactory explanation of the cause which produces these frequent and striking changes, although there is nothing connected with statistical inquiry more interesting to an inquisitive mind.

Frequently before we are able to perceive any circumstance which might prepare the mind for so sudden a transition, the traveller finds himself, upon merely crossing a river or ascending a ghât, brought into the presence of a people whose habits and customs are totally dissimilar to those whom he had quitted only a few minutes before.

In no part of my journey through Hindústan do I recollect being more forcibly struck with the abruptness of this change in the appearance of the people, than in my progress from Cawnpore to Keitah. About midway, it became necessary to cross the Jumna. No sooner had I landed on the opposite bank and ascended the steps leading to Culpee, than an entirely new race of beings presented themselves. The women, who before appeared in white flowing robes, were now attired in party-coloured drapery and loose trousers; and the men, instead of white or coarse dingy turbans,

with a dhoty merely about their bodies, wore green turbans and loose full length body dresses. Their physiognomy too was different. The people of the Dooab district having for the most part well formed features, while those of the Boondelas at Culpee are sharp and contracted. The latter are also more diminutive in stature, and differ from their brethren on the opposite shore as widely in their moral character as in their physical condition. The Dooabees are by no means immaculate, but in comparison to the Boondelas they stand high in moral reputation.

Treacherous to a degree, a Boondela will not hesitate to sacrifice his best friend to assist in the promotion of his own selfish views; and no restraint is sufficient to arrest him in his career of vice.—"One Boondela," according to the proverb, "being equal to a hundred Dhundees*."

Before the late renewal of the India Company's charter in 1833, Culpee was the seat of a commercial residency. The establishment has now been broken up, at a great sacrifice to the government.

* Ne sou Dhundee ne ek Boondelkundee. Dhundees are weighers of grain, and notorious rogues.

This town is also celebrated for the superior sugar-candy it produces. The inspissated cane-juice, called *gúr*, is not manufactured here, but it is brought from various parts, particularly the province of Rohilcund, and refined into candy by the sugar-boilers of Culpee.

The Jumna, at this place, during the dry weather, is about as broad as the Thames at Westminster when the tide is out. In the rainy season it covers an enormous sand-bank—its dimensions being more than trebled. Between Culpee and Chillatarah Ghât, which is a great shipping place for cotton, about fifty miles farther down the stream, the Betwa and Kén rivers empty themselves. The latter is celebrated for its beautiful transparent stones and pebbles.

On one occasion, while passing a day or two at Chillatarah, I discovered that the people make a great distinction between the waters of the Jumna and those of the Kén, which empties itself into the former stream just above the village. They never use the Kén water if they can avoid it; and take the trouble to go above the mouth of that river to fetch whatever quantity they may require. The

people of Hindústan, it should be observed, class good and bad water under the denomination of heavy (bharee), and light (hulkah); and this being their only beverage, they acquire so much nicety of discrimination in the selection of it, that their report on all occasions may be relied on with confidence, and made to serve the purpose of an ordinary specific-gravity apparatus. On inquiring the cause of their preference in this instance, they told me that the Kén was a mountain river, and that the water of all mountain rivers was *heavy*.

The fact of the people almost invariably falling sick when compelled to have recourse to heavy water, after being accustomed to the light kind, is a convincing proof that their attention to this subject is not uncalled for. The first question put by these people, one to another, on reaching a strange place, is, "Howa panee kisa hye?"—("How do you find the air and water?") And as the answer happens to be favourable or otherwise, so they calculate the chances of escape from sickness.

I had not been long at Keitah before I received a demi-official summons to attend on the rajah of Chatterpore, whose representative, or vakeel, at the

court of the British commissioner for the affairs of Bundlekund, at Humeepore, represented, that his master had, for many days, been labouring under a severe fever, and that he earnestly desired that an English physician might be allowed to attend on him. An express had reached him, he said, stating, that delirium had of late come on at night, and that the rajah was deemed to be in a very critical state.

No time was lost in laying a dâk through the postmaster of the station; and even before the certainty of the men being at their posts could be insured, I commenced my journey. I left Keitah about two in the morning of the 10th of September, 1828, accompanied by a Mahomedan servant (Khidmutgar), who was prompted, doubtless, in this severe undertaking, by feelings of self-interest. Chatterpore is a large flourishing town, situated in the heart of Bundlekund, and upwards of fifty miles from Keitah. I pointed out to this man the folly and absurdity of his attempting to keep up on foot with the palankeen, but, in spite of my remonstrance, he said, that, with my permission, he would try. He ran for thirty miles beside the pa-

lankeen, in an intensely hot day, and, having proceeded thus far, he was seized with a fit of ague, in consequence of the fatigue and excitement, and compelled to pause. Bent on his purpose, however, of reaching Chatterpore in time to be present at the first interview, when he would be sure to receive some presents, he had no sooner shaken off the sweating stage of the disorder, than he girded up his kummerbund (loins), pushed manfully forward, and succeeded, owing to an untoward accident which I shall presently relate, in reaching Chatterpore only a few hours after his master.

I got on very well at first starting, considering the oppressive state of the atmosphere and a head not the easiest in the world from the too free indulgence the night before in potations of sparkling champagne, as far as a town called Logasse, bordering on the Chatterpore state, and belonging to an independent chief, between whom and the Chatterpore ruler feuds and strife were constantly occurring. The sun had just gone down behind a hill as I entered the town of Logasse; and the bold relief into which the small but commanding fort that overlooked the town was thrown, by the shootings of the

first stray lines of evening twilight, produced a peculiar and imposing appearance, such as I never recollect to have before witnessed. On stopping at the station-house, I found the messengers who had been despatched in advance to collect bearers for the palankeen, had only just arrived, and had not succeeded in procuring more than six men, eight being the proper number. Trusting that these would be sufficient for my purpose, I would not wait; and, in despite of their remonstrances, hastened on. The men proceeded about two miles and a half to the bank of a small rivulet, and then, without saying a word, placed the palankeen upon the ground, and refused to advance further till they had procured the two additional men.

Night having now set in, and being rather in a wild part of the country, I did not much relish this sort of treatment, for I had sufficient experience in dâk travelling to know, that were they so inclined, they could have contrived to take me on. Prudence, therefore, dictated to me the propriety of looking well to the portable pieces of ordnance which I had brought with me. The whole of the six men had, one by one, dropped off, and the only person left by

me was the mussalchee, or torch-bearer. "He staid," he said, "to keep me company, for he had not the heart to leave me alone." Finding myself helpless, I was obliged to bear this detention in the best manner I could; and, as in the depths of the Rajmahal jungles, so here, the soothing influence of the cigar proved my only solace.

About midnight, while busily puffing away to beguile the tediousness of the solitude, amid surrounding gloom (for it was exceedingly dark), a large wild animal came down the road, and dashed by the palankeen at full speed. The fears of myself and torch-bearer pronounced it to belong to one of the feline race; but the glance obtained was so transitory, and the darkness so great, that we were unable to determine the point with any degree of precision.

Fortunately the pistols were not required; I was allowed to pass the night without molestation. About an hour before daybreak, a traveller came up; his road lay in a contrary direction to mine, but I explained to him, as well as I was able, the situation in which I was placed, and then offered him three rupees if he would go back to Chatter-

pore, a distance of ten miles, and report my condition to the superintendent of the post-office, one rupee being given to bind the contract. To my surprise, the man performed this piece of service; another convincing proof of the sincerity of the pledge—he returned in a few hours with a complete set of men. During his absence, the six men, who had deserted me on the road on the preceding night, came back, bringing with them two additional hands. Before we had proceeded far, we met the supply from Chatterpore, and having now sixteen men in the place of six, the few remaining miles of ground were got over at a hand gallop.

I was assured afterwards at Chatterpore, but with what degree of truth I am unable to decide, that the conduct of the six palankeen-bearers proceeded from the instigation of the Logassee Rajah. Learning that my speedy progress might be important to the health of his rival, he determined to keep him another twelve hours without aid, and so bribed these fellows to treat me to a night's bivouac on the road.

The origin of the squabble between these two chiefs appears to have been the refusal of the one to acknowledge the other. The Logassee man is an

old Boondela chief, who traces his pedigree, through a long line of ancestors, up to the progenitor of giants and demi-gods; whereas, his neighbour of Chatterpore is regarded as an upstart, and, what is still worse, a Rajah of the Company's creation.

It may not be uninstructive to state a few historical particulars, as they serve to mark the animus which influences the conduct of the petty independent chiefs of Bundlekund, and of central India generally, towards the British government. Pertaub Singh, the present Rajah of Chatterpore, is the son of the late Sonahsah, chief of Chatterpore and Soundee*. At the time of the breaking out of the Burmese war he inherited his father's property, and, being a large landed proprietor, was called zumeendar. His revenues are said to exceed

* Hurrah Singh was the name of the rightful heir of this territory, but being a minor at the death of his father, he was given in charge to Sonaee Jee Dewan, or, as he was sometimes called, Sohah Sahee, of the Powar tribe, originally a common soldier. This man, availing himself of the anarchy of the times, seized the territory, and obliged Hurrah Singh to take refuge with a distant chief, called Meer Khan. Thus Sonaee Jee obtained forcible possession of this country, which, on his death, descended to his son, Pertaub Singh, who at present rules and resides at Chatterpore.—*Pogson.*

£70,000 per annum. He is one of the very few men whose treasury is in a flourishing condition. The public need not now be told that at the time the rupture took place between us and the Burmese, the Calcutta treasury was far from being overstocked; and to meet the exigencies of this ruinous campaign, Lord Amherst was driven to repeated shifts. A general notion was pretty prevalent, too, at the time, that all who were disaffected towards us were watching with intense anxiety the results; and some even went so far as to say, that our existence was threatened had matters proved adverse. Under these circumstances, I believe I am not far wrong when I state, that as a stroke of policy it was deemed advisable to entangle the richer natives as much as possible in the schemes of government; and nothing appeared better calculated to promote this object than to make them public creditors. If they could once be got to invest their money in the government loans, motives of self-interest would, it was thought, prompt them to be individually interested in our success, and thus the stability of the empire would be secured. The scheme, I am told, proved a la-

mentable failure. The rich capitalists, about the seat of government even, showed little or no solicitude in this momentous and important crisis; for in India there is no feeling of patriotism, notwithstanding they were public creditors to a large amount.

Intimation, however, was given to all the monied chiefs of Hindústan, through the government representatives, that the loan offered peculiar advantages for the investment of capital. Pertaub Singh, of Chatterpore, came forward at once with £5000 (50,000 rupees); and to mark the sense of gratitude which the government entertained for this paltry sum, and at the same time to allure others to follow his example, the political agent for the affairs of Bundlekund was desired to place him on the *Gudhee*, with the dignities of Rajah.

This act was considered such an outrage on their dignity, that not one of the aristocrats of Bundlekund will recognize Pertaub Singh as Rajah; and when speaking of him, they always style him by the inferior title of zumeendar. In wealth he would outweigh the whole of them, for they are all as poor as mice; but in their estimation, a dig-

nity conferred under the English Raj, is no dignity at all. Hinc illæ lachrymæ.

Immediately upon my arrival at Chatterpore, I despatched a *chuprassé* to the palace to announce my approach; and, as I reached the gates, I was surrounded by a large retinue of those hangers-on always to be found at a great man's door in India. No set of people appear to understand better the relative importance of rank than palankeen-bearers; and in proportion to the rise of a person's consequence in India, do these people display it by the alertness with which they convey him over the ground, and by the loud and full enunciation of their monotonous "*he, haw, ha, haw!*"

A *chota sahib* (small personage), whatever pains he may take, can never keep pace with the palankeen of a *burra sahib* (great personage). On this occasion, the men dashed along full swing up to the door, with their note far louder than had ever before been raised to my honour. Scarcely had I got out of the palankeen, before the Rajah's son, an intelligent young man about twenty-three years of age, made his appearance. The reader may judge my astonishment and gratification at hearing, "Give me your hand," uttered by the gentleman in

my own tongue. I immediately did as I was desired, and a hearty shake of the hand followed. The *Dewan Sahib*, as the Rajah's son was called, entertained a great predilection for the English and their customs, which accounts for his receiving me in the manner described. A Bengalee baboo from Calcutta was with him as his English tutor.

We went together into the palace, and in a few minutes I was introduced into the presence of the Rajah. I found my patient on a little low bedstead, or charpoy, as it is usually called by Anglo-Indians. He was supported by enormous large cotton pillows, and surrounded by a number of favourite servants, who all appeared to strive with each other in their loud expressions of concern and grief at the melancholy condition of their master. So anxious did all appear on this occasion, that two or three would detail to me at the same moment the peculiar sufferings he had endured. And if, in their recital, the Rajah detected an error, almost before he could correct them, they appeared to read his thoughts and to anticipate his intentions, by correcting it themselves.

Although at the time of my arrival he was per-

fectly collected, I found, that, during the night, his mind had been wandering a good deal, and his condition altogether very critical. I ordered my travelling medicine-chest to be brought in from the palankeen, and without loss of time prepared the Rajah a draught, which, after a little hesitation, he swallowed, amidst the invocation of blessings from his gazing attendants. Notwithstanding the exhaustion from the *Continued* fever, I found him very inquisitive. One of his first questions (and it is a favourite one with all natives) was "whether I was married or not?" He declared himself to be under a weight of obligation to Mr. A., the political agent, for procuring my services, and would have gone on much longer, had I not deemed it prudent to enjoin repose. A *nuzzer*, or small present of money, fruit, and spices, being ordered in, on trays, and presented to me, I promised to renew my visit in the evening, and was permitted to withdraw.

The room which the Rajah occupied was a small one on the ground-floor, looking into a narrow court, surrounded by immensely high walls. This apartment was without decorations of any kind; and, in order that there might be as free a circulation of air

as possible, no cumbrous or unnecessary furniture had been admitted. Before I retired I was asked whether I preferred a residence in the palace, or the possession of a small dâk-bungalow in the suburbs, erected, on an open and beautiful sward, by the Rajah, for the temporary accommodation of European travellers who might happen to be journeying through his territory. As it was likely that I should be some days in attendance, I thought it would be more comfortable to select the latter; but, when I reached the house, I found it in a very unfinished state, and occupied by half a score of bullocks. These gentry, were, however, speedily dislodged, and the room well cleaned. A floor-cloth, bedstead, chairs, goats, eggs, fish, poultry, &c. were sent up from the palace; and while looking about and inquiring who would be cook, my own khidmutgar made his appearance, and superseded the necessity of my employing the Rajah's servant. A chobdar, or silver-stick bearer, was placed at my disposal, and a guard of ten match-lock-men ordered to be on constant duty. After the fatigue of the previous night, and the excitement of the morning, I was glad to seize the first

spare moment to procure a little sleep. I awoke about three in the afternoon, and found a delicious curry ready for my dinner.

I have already mentioned that I was received at the palace by the *Dewan Sahib.* On taking leave of his father, he requested me to accompany him to his own apartments, previously to my departure for the bungalow. He invited me to take a *chillum* with him, but being no hookah-smoker, I excused myself. His own hookah being brought in, he desired the Bengallee teacher to show me some specimens of his learning. His English copy writings were produced, his text-book, I observed, being "Reading made Easy." I found that he could write better than he could read, and that his proficiency in both exceeded his comprehension of the meaning of either. It was extremely pleasing, however, to hear proceeding from the lips of a Hindú those short moral and religious precepts of our Church, which are made intelligible to the meanest capacity, by being clothed in so much simplicity of language. I sat nearly an hour with him, and, on coming away, happening to have Dr. Gilchrist's Hindústanee

Dialogues with me, I presented them to him, at which he appeared to be quite set up, and promised to take a lesson out of them every day.

This young man courted the society of European officers whenever chance happened to throw them in his way, a circumstance, however, not of frequent occurrence. When any troops marched through his father's territory, he never failed to show the officers all the civility and attention in his power. This was sure to call for a display of courtesy in return, and he would generally be invited to dine at the mess. Unfortunately, with him, as with most young Hindús who entertain predilections for the English, the rubicon once passed, and meeting frequently with the least temperate of our countrymen for examples, the joys of wine become too attractive. In these cases the bounds of propriety and moderation are soon broken through, and the scene ends in turbulent drunkenness and a disordered constitution.

My new friend's frame had already experienced the baneful effects of such dissipated courses, and he wished me to administer some medicine, which, like a charm, should restore him to health and

spirits. I read him a few trite sentences out of his "Reading made Easy," as the best balm of Gilead which I could offer, to check the progress of such melancholy symptoms of debauchery.

He was blessed with two wives, and according to the usual result, a deadly hate existed between them. They were not only jealous of each other, but, since the arrival in the town of a fascinating nautch girl, the whisperings of scandal taught them to suspect that neither had a full moiety of their husband's favours.

At half-past four, long before the sun had gone down, or ceased to be unbearable, my attention was aroused by the distant sound of a slow beating bell, and on looking out I perceived a large elephant, richly caparisoned, approaching the house. Presently the chobdar appeared, and informed me that the Rajah had sent the animal, with his compliments, for my use, and that the Dewan Sahib was waiting at the palace to join me in a ride. In a few minutes I was ready, and seated on the back of the majestic beast. Around the neck were suspended strings of small bells; and from the lowest hung one larger than the rest, about the size of a

London dustman's bell, which struck, at every step taken by the animal, a loud and steady clang, while the minor ones were in a perpetual jingle. In answer to a question, the driver told me that "Mootee" was forty years old; "but," added the man, "she has never had a young one." I asked "why?" "It is the will of God," was the reply; "what is to be, will be."

As we turned a corner to enter the town, the Dewan Sahib suddenly came upon us, also mounted on an elephant. After interchanging the ordinary salutations, I dismounted from mine, and joined him in his houdah. We were preceded by a retinue of about 300 men, armed in different ways, who presently drew up and saluted us; some had tulwars, others matchlocks, and a few, clothed in scarlet jackets, were provided with muskets. Those who were furnished with the last-named weapon were a superior class of men, selected for the battalion composing the Rajah's body guard, being always on duty at the palace. As we passed the gates of the Rajah's residence, the Dewan turned to me and said, "This is to your compliment;" and immediately a salute was fired from some brass

ordnance, which had been drawn out in the front of the square.

Preceded by a large band of Hurkarus and other attendants, bearing silver sticks, swords, and match-locks, we took the direction of the town. As the cavalcade passed along the different streets and alleys, the inhabitants crowded forward to offer their homage to their master's son. This display of attachment gave me a sensible pleasure. They saluted him, without noise or tumult, by an inclination of the body, at the same time touching their foreheads with the fingers of the right hand and hailing him as their master and protector. The Dewan would occasionally return their salutations in terms affectionate and condescending; which, like a stroke of magic, seemed to light up their countenances with joy, and to dispel every latent trace of grievance from their minds.

Chatterpore is the cleanest and most flourishing town in Bundlekund. There are several extensive paper manufactories here; and the country, for a considerable distance round, is supplied with its coarse cutlery, which is manufactured from iron ore, of which the hills in the province of Bundlekund

abound.. The pawn gardens in the neighbourhood of the town are very extensive, especially about Malara, a village ten miles distant, where the Rajah has a country residence. One garden there pays 3000 rupees a year revenue, which is equivalent to £300. The tax levied for pawn or betel-leaf garden land being from three to four rupees an acre.

Within the last few years the Rajah has laid out considerable sums at Chatterpore, in building an elegant and commodious caravansary, for the accommodation of merchants. This building is an inclosed area, the interior sides of which contain numerous small apartments fronting inwards, with an open verandah along the whole extent. The approach to it is by one principal gateway.

On returning from our ride, the Dewan would insist on my joining him in a glass of Hodgson's bottled ale, in preference to champaign. After which I renewed my visit to the Rajah, and then returned to my temporary and uncomfortable domicile.

The following morning, the patient having passed a good night, I was enabled to repeat the medicine without difficulty. My reputation appeared evidently on the increase; for I was requested by the

Rajah to accompany the Dewan to the private apartments of the palace, to see his mother,* the Ranee. In the court, which we crossed, we left all our male attendants; we then ascended a steep stone staircase, so narrow that a stout person could scarcely get along; on reaching the landing-place I was desired to wait until my arrival should be announced. I soon perceived, flitting about, a number of dark-eyed slave girls, who, evidently, were busy about nothing, in order that they might gratify their curiosity, and certify to the fact of an European physician having been fairly seen within the precincts of their mistress's apartments. While others, more scrupulous and timid, took advantage of the numerous fissures and loop-holes, always to be found in the walls and partitions of a native palace, to reconnoitre with caution and circumspection.

Presently the *cheek*† was raised, and, leaving the

* Hindús of every denomination studiously avoid mentioning the word *wife* when alluding to their own spouse. They speak of her by the paraphrase "of a certain person," or some such loose expression.

† Cheeks are bamboos split into fine rods, and woven together in parallel lines with thread: they are hung up in the door-ways, to keep out flies, and yet admit the passage of air.

Dewan at the entrance (I believe the rules of etiquette prohibit the son from entering his mother's apartments after a certain age), I was ushered into the presence of the Ranee, whom I found in a half darkened chamber. Before the pupils of my eyes were completely adapted to the sudden transition, and I was enabled to see clearly, I perceived, advancing towards me, a little object enveloped from head to foot in a *kin-cob* silk sack—this I soon discovered to be the Ranee. No part of her person was visible except the eyes. The dress she wore was composed of the richest figured silk, but made exactly similar to a sack, so that when thrown over the person, it formed a complete envelope. Immediately opposite to the eyes, two small holes were made, through which she was enabled to see without being seen. In height she could not have been more than four feet six or seven inches; and she was miserably thin. A chair being brought, I sat beside her, and listened to a lengthened detail of her sufferings. I requested to be permitted to feel her pulse, which, after some hesitation, the little lady permitted me to do. Necessity required that I should propose this, for I well knew that the pulse is considered by the

people of Hindústan to be so true an index to every complaint, that a surgeon would greatly compromise his reputation, if he neglected to avail himself of so infallible a criterion. A little difficulty was experienced in getting the arm through the sack. The hand and wrist were the smallest and most delicate I ever remember to have touched.

The little creature was loquacious, and, together with her maids, entertained me with a minute detail of her malady from the commencement. The conversation throughout evinced a total disregard to those delicacies of expression which characterize the conversation of an European lady with her medical attendant. The manner in which the numerous beautifully formed creatures who surrounded the Ranee, talked to me of their mistress's complaint, gave me a new insight into the private manners of the East, for they described, with the utmost indifference, circumstances and symptoms which the conventional rules of society in Europe instruct us to relate with the greatest caution and delicacy.

The room, I perceived, was similar to that occupied by the Rajah, being almost wholly without

furniture or decorations of any kind, and entirely destitute of those luxurious appendages which are generally, but erroneously, supposed to adorn the palace of an eastern chief. A large iron-bound chest in one corner, and a small mat in another, formed the only moveables, besides the seats brought in for our accommodation. A moment's consideration will show the necessity of limiting the household goods to articles of mere utility in a climate in which it would be impossible to endure apartments fitted up with heavy couches, ottomans, curtains, and other European elegancies. To decorate a chamber in India with half the furniture we find in common use in England, would have the effect of choking the atmosphere with insects, and of rendering the apartment unfit for occupation.

Although we are led to believe that the Asiatic ladies who are the inhabitants of Turkey indulge in the most luxurious accommodations, in Hindústan, assuredly, we never see those rich ottomans or carpets on which we are told they recline their voluptuous persons to sigh away and beguile the tedium of many idle hours. The pleasures of an Asiatic in Hindústan are quite of a passive kind,

and altogether different from our ideas of amusement. A lady or gentleman of Hindústan cannot comprehend the delight which the people of both sexes in our country appear to experience in the exhilarating exercise of the dance, or those other active recreations which form so large a portion of our enjoyments.

To sit by the hour and hear recounted the fantastic tricks of some neighbouring fairy, or the relation of the exploits of a second Roostum, while inhaling the delicious fumes from the aromatic chillum, or stimulating the prostrate appetite with the caustic and pungent betel-leaf, is to them the acme of earthly felicity. Utterly ignorant of all her husband's public affairs, the wife, immured in the closest seclusion, cannot by any possibility gain the slightest personal knowledge of the world: her ideas are as contracted as her sphere of action, and whatever the crafty and cunning of her sex choose to impose on her, she readily receives.

When I had finished my inquiries, and satisfied myself respecting the nature of the Ranee's complaint, the usual offering of sweetmeats and spices was brought, and having signified my acceptance

of the same, by taking a few cardamoms and a pawn, I withdrew. At the outside I found the Dewan still waiting, and on reaching the bottom of the flight of steep stone stairs we were joined by the male attendants, who escorted me to my palankeen, and then dispersed.

Conformably to the state of subordination in which Hindú women are placed, it has been judged expedient to debar them the use of letters. The Hindús hold the invariable opinion, that acquired accomplishments are not necessary to the domestic habits of the female; either as contributing to her individual happiness, or in preserving that decorum of character and simplicity of manners which alone render her useful or amiable in the estimation of her family. They urge, that a knowledge of literature would divert the attention of a woman from her household cares; and by infusing discontent into her mind give her a disrelish for the performance of those offices which should alone afford her satisfaction, and constitute the only amusement in which she can, with propriety and a due observance of rectitude of conduct, partake. Such is the force of custom, that a Hindú lady would incur

a severe reproach were it known that she could read or write.

It must not be concluded from the foregoing statement that all Asiatic ladies are kept in bondage, and have no will of their own. Notwithstanding their fondness for home, Mahomedan ladies enjoy privileges which few husbands in the free countries of the West would be disposed to concede to them. Like the stern resolves promulgated by the lady-matrons who presided over the courts of love in former times in Europe, the Asiatic ladies have their code feminine. In it their privileges are duly stated, and so *satisfactorily explained* as to leave no doubt of their impartiality and independence. The book is called *Kitabi Kuslum Nanéh*, or the Book of Kuslum Naneh. The work is, however, the production of a conclave of seven learned ladies, Kuslum Naneh being only the chief personage. The ladies in their poem declare their purpose in the following language:—

" Here Persia's matrons, skill'd in worldly lore,
Assert the power their mothers held of yore;
In council deep, grave matters they debate,
And household cares, and mysteries too relate;

Proudly in solemn conclave they unfold
By what nice conduct husbands are controll'd;
Tell of the spells which check connubial strife,
And the vagaries of a woman's life.
These moral laws the sex's homage claim,
And shed renown on Kuslum Nanéh's name."

According to these ladies there are three classes of husbands in the world:—1. A proper man. 2. Half a man. And 3, a Hupul-hupla. A proper man at once supplies whatever necessaries or indulgencies his wife may require. He never presumes to go out without his wife's permission, nor do anything contrary to her wish.

Your half man of the second class is a very poor, snivelling wretch, always meddling, with but little furniture in his house, and just a sufficiency of bread and salt to maintain life—never on any occasion enjoying the least degree of comfort. ' The wife sits in the house and works. It is therefore wajib (correct) in that industrious woman to reply harshly to whatever he says; and if he beats her, it is wajib for her to bite and scratch him, and pull his beard, and do every thing in her power to annoy him. If his severity exceeds all bounds, let her petition the kasi and get a divorce.

The third class, or Hupul-hupla, has nothing, no friends. He wants to dress and live luxuriously, but is totally destitute of means. If the wife of such a man absent herself from his house, even for ten days and ten nights, he must not, on her return, ask her where she has been; and if he sees a stranger in the house, he must not ask who it is, or what he wants. Whenever he comes home, and finds the street-door shut, he must not knock, but retire, and not presume to enter till he sees it thrown open. Should he act contrary to this, the wife must immediately demand a divorce. Kuslum adds a separate remark of her own, and declares, that if such a husband should afterwards even beg to be pardoned, and allowed to resume his former habits, it would be wrong in the wife to remain a single day under his roof.

On the chapter embracing the conduct of husband and wife, the Learned Seven declare that man to be deserving of praise who confines himself to one wife: for if he take two he is wrong, and will certainly repent of his folly. The ladies, however, are not strict in exacting a similar observance from their own sex, for Kuslum Naneh expresses

her astonishment how a woman can live all her life with one husband. Why should he, she innocently inquires, deprive her of the full enjoyment of this world's comforts? Days and years roll on and are renewed, whilst a woman continues the same melancholy inmate in the same melancholy house of her husband. She has no renewal of happiness, none. The lady piteously exclaiming,

"The seasons change, and Spring
Renews the bloom of fruit and flower;
And birds, with fluttering wing,
Give life again to dell and bower.
But what is woman's lot?
No change her anxious heart to cheer,
Confined to one dull spot,
To one dull husband all the year."

Among the duties to be inculcated on the part of the mamma, Kuslum Nanéh particularly specifies the acts of endearment, as being necessary for the daughter; how to dart amorous glances with effect; how to play off coquettish airs, blandishments, heart-ravishing smiles, and, in short, every characteristic of an accomplished beauty. This is both *wajib* and *sunnat*, necessary and expedient, according to the traditions of Mah'ummed.

The men of the East themselves look upon their women as virtually invested with more power and liberty, and greater privileges than the ladies of Europe. Mirza Abu Taleb Khan, who visited England many years ago, and who had ample opportunities to form a correct judgment, ranks, under *eight* heads, the privileges enjoyed by his countrywomen, and denied to European wives, both by law and custom.

The fifth head deserves to be extracted:—"The greater deference to the humours of the Asiatic ladies, and *the prescriptive right which they possess, of teazing their husbands by every pretext.*" This latter quality is deemed in the eyes of an eastern husband as essential to the perfection of beauty; for, adds the Mirza, "if a wife does not put this in practice, but is submissive to her husband's will in everything, her charms very soon lose their force and brilliancy in his eyes."

Mr. Atkinson, of the Bengal Medical Service, has translated the Kuslum Naněh, at the desire of the Oriental Translation Committee, and, by it, satisfactorily shows, that little is understood in England of the real situation of women in the

East, beyond the impression of their being everywhere absolute slaves to their tyrant husbands, and cooped up in a hárem, which to an English woman can be nothing better than a prison.

I recollect the late Colonel G—— informing me that his lady, who was a connexion of the royal family of Delhi, could read, and I think he said write also, and that she felt proud of the acquisition. This lady, however, is a Mahomedan, and consequently of a race far less bigoted than the Hindús.

The Hindú dancing girls, on the other hand, whose occupations are avowedly devoted to public pleasure, are taught the use of letters, and are minutely instructed in the knowledge of every blandishment and art which can operate in communicating the sensual gratification of love. These women in former times were not obliged to seek shelter in private haunts, nor are they, on account of their professional conduct, marked with any opprobrious epithet. No religious festival or ceremony is considered perfect without the presence of dancing women; and during the Hindú and Mahomedan rule of Hindústan, they were, and are, even to this day,

in those sovereignties independent of us, endowed with grants of public land for their maintenance. The mass of them however are now without this provision, and not a whit less dissolute in their habits than the fair Cyprians of the western world.

When public business or negotiations of any kind render it necessary for the ladies of Hindústan to receive male visitors, they generally sit behind a cloth screen or purdah, and carry on the conversation without being seen—sometimes the vest or sack is adopted, as in this interview with me.

The scenery about Chatterpore is very romantic. High granite hills rise from the background in the neighbourhood of the dawk bungalow, and at their foot, amidst groves of majestic timber trees, are numerous temples. Oftentimes of an evening, after the intense heat of the day had in some measure subsided, I used to ramble about these buildings. The remains of Chutter Saul lie at Chatterpore, and over them is built a most costly mausoleum of Hindú architecture.

The opportunity offered, during my residence, for wandering over these buildings afforded me a con-

vincing proof of the truth of the charge which has been so frequently brought against Englishmen, who are justly said to carry their foibles* about with them wherever they go. It is usual to make Chatterpore a halting place on a line of march, and according to a favourite method of employing time, the greater number of British officers and privates, who have travelled this way, have deemed it expedient to record so memorable an event in the manner best suited to the fancy of each individual. Accordingly I found the walls of these temples covered with inscriptions, consisting chiefly of the register of the names of the visitants, and the dates and seasons in which the different members of the Higgenbottom and Smith family journeyed through the territories of the Chatterpore Rajah. Some, more cunning than the rest, actuated by a laudable desire to keep aloof from the vulgar herd, had taken the trouble, an achievement not performed without difficulty, to climb a top corner in order to trace in legible characters their names in full length, together with the month and year of the visit.

* Kotzebue says an Englishman carries his tea-kettle wherever he goes.

The state of mind of the party who thus defaced the walls was indicated by sundry reflections and remarks. One scrawl, from its freshness and legibility, early attracted my attention. The breathings of wrath which it conveyed, but too clearly evinced the unhappy temperament of the individual's mind at the time.

> "Here I am with the wind blowing as hot as H——l,
> And may the man who caused my being here, have
> His ribs made a gridiron of, on which to roast
> His soul."

My patients had been gradually getting better for many days, and at the end of a fortnight were convalescent. It was, therefore, unnecessary to remain longer at Chatterpore, and I intimated to the Rajah that I intended, with his permission, to return to Keitah as soon as the dâk should be ready. He expressed great grief upon the occasion, and, assisted by his household who surrounded him, assured me, in the inflated and figurative language of his country, "that I was more to him than father or mother, and that for the services I had rendered him as well as to the Ranee, the Dewan, and the people of his town,

he should never cease to extol my praises, and would ever regard my attendance on him as the greatest of blessings." The sincerity of this hyperbole may be estimated when I state that the principal present he gave me was a large fat horse, which, before he had been in my possession a fortnight, proved diseased and not worth one hundred rupees.

I got back to Keitah in safety, but one little incident happened on the road which I cannot avoid mentioning. The torch-light bearer had neglected to furnish himself with a due quantity of oil, and, about midway between the two post stations of Logassee and Jyepore, he announced to me in a great fright the complete expenditure of the article. To have procured a fresh supply at that time of night, far from any habitation, would have been impossible, and we should have been compelled to rest till day dawned, had I not fortunately had, in my palankeen, the remainder of a few ounces of castor oil which I had brought with me. This I immediately served out to him, and luckily it proved just enough to bring us in to the relieving station. On a similar occasion Rowland was

indebted to the neglect of a link for the expenditure of no fewer than six bottles of his Macassar oil. A young spark had been on leave to the eastern metropolis (Calcutta), and was rejoining his regiment with a fit and becoming supply of perfumery, when, on the middle of the journey, one dark night, the supply of oil failed, and to prevent a detention of several hours, he was compelled to contribute six bottles of the precious liquid intended to impart an ambrosial odour to his curls.

After my return to Keitah, I frequently received messages from Chatterpore, but my duties did not again take me in that direction for nearly three years; at the expiration of that period I had occasion to pass through it on my way to Saugor in Central India: very considerable changes had taken place in this short interval. My friend the Dewan Sahib was dead. His habits of dissipation had taken too deep a hold to enable him to break through them. He indulged in the most vicious excesses, which increased as his health and spirits declined. At length, in the rains of 1830, he was seized with a fever and died. He was

much regretted by his father's subjects, to whom he had greatly endeared himself, and they looked forward to him as an able and good successor. At the time of my second visit the Rajah had been absent for some months; and the soil on which the first wife of the deceased son had immolated herself was still charred by the fire of the funeral pile. Immediately upon the announcement of the Dewan's death, in the Zenana, I was informed that the lady to whom he was first married expressed her determination to burn herself on his pyre—the town and palace rang with acclamations of praise at this display of her attachment and fortitude.

"Unfaithful as he had been," she was heard to say, "he was all to me, and this world has nothing in it now worth living for; rather than remain a degraded being on earth, I will accompany my husband to paradise and be for ever blessed."

Amongst the superior classes of Hindús, where the sense of honour is most delicately preserved, rather than suffer a degradation by which female attractions are extinguished, and the pride and

spirit of the sex depressed, as must always be the case on becoming widows (the very term being used among the Hindús to denote futility or any contemptible act), the women are impelled by the courage given by despair, but which takes the name of affection to the deceased, to avoid their anticipated misery by death.

When a woman declares gravely and deliberately, that she desires to be consumed alive by the side of the dead body of her husband, the matter is conclusive. She cannot afterwards draw back, for were she to do so, the district, according to the steadfast belief of all the inhabitants, would be visited by some dire calamity. To prevent any faultering in her glorious resolve, the Brahmins and all her kindred visit her in turn, complimenting her on her heroism, and the immortal glory she will derive from a mode of death which exalts her to the dignity of the gods. They excite her fanaticism by every means which a cruel superstition can suggest, and keep up the frenzy of her imagination, until the hour arrives in which they conduct her to the flaming pile.

After the fire had consumed the bodies, the rem-

nants of the bones which remained were collected; and, over the spot on which the suttee took place at Chatterpore, workmen were preparing the masonry for erecting a monument, to transmit to posterity the memory of so illustrious a victim of conjugal attachment: the woman who has submitted to this glorious death being regarded by all in the light of a Deity.

The second, or No. 2 wife, however, resolutely refused to burn herself. Neither entreaties, nor threats, nor reproaches were spared to persuade her to prefer so glorious and honourable a death, to the possession of a remnant of life, to be dragged out in contempt and infamy; but every effort was employed in vain.

"After the first burst of passion was over," she said, "he had never shown her common attention, and therefore she had no disposition to burn herself for his sake." "Pajee, as she is," said the old man who was my informant, "she was scarce deserving the position in which she was placed; and with the allowance of a pariah, she is now, barefooted, and, excluded from all intercourse with the family, shut up in the Rajah's country-house at Malara, suffer-

ing the degradation so justly her due, for bringing such disgrace on herself and family*."

In the course of a few weeks after my visit to Chatterpore, the regiment was directed to proceed to Cawnpore.

* Although the rite of Suttee has been prohibited throughout the British possessions in India, among the independent native states, the ceremony is still observed.

CHAPTER V.

Leave Keitah—Preparations for marching—Arrival at Cawnpore—Cantonment Houses—Ice Houses—Want of Protestant Churches in India—Missionaries—Musquitoes, Scorpions, and Snakes—Snake-charmers—Influence of music—Anecdote of Snakes—Antidote for the bite of venomous Serpents.

To bid adieu to a place so notorious for its unhealthiness as Keitah, required no great mental effort; on the contrary, every one anxiously desired the happy day in which the first movement towards a new station would dissipate a host of physical ills, and bring him in contact with new scenery, different air, and fresh society.

The march of a cavalry regiment is always a circumstance of importance, and being at this time attached to a corps of this description, I had ample opportunities for observing the numerous incidental preparations which are deemed requisite before the commencement of the route. The Anglo-Indian government have ever considered it

prudent to relieve the different corps, composing the native army in India, triennially. As the termination of this period draws round, the topic becomes uppermost in the minds of all concerned.

In the first place, the merits of the newly appointed station are fully discussed. Letters are dispatched to acquaintances and friends, begging that plans and terms of all the vacant houses may be furnished. The most trivial incidents, or improbable circumstances connected with the new residence, are eagerly caught at and magnified by repetition during the few weeks that remain, into things of weighty and grave import. Should there be an officer present who is acquainted with the place, he is referred to and questioned; and as his explanations are generally distinguished by a minuteness which bespeaks the gratification he feels at being able to impart to his companions information which may be deemed exclusive, he is usually very communicative, satisfying the most pertinacious inquirer upon every point.

No one person who has ever associated with the army in India, can have failed to experience the recurrence of those sensations of our boyhood, elicited

by "the breaking-up and going-away," feelings which are brought back to our recollection with all the vigour of their pristine freshness, by the circumstances so nearly resembling them. What delight do we not also experience at the setting in of the cold season; when, after months of languor, the mind is once more restored to a state of joyful elasticity, and every object that surrounds us comes painted to the imagination "couleur de rose!" When, again released from prudential restraint, the "Manton" can with safety be once more shouldered, and, free to move wherever inclination prompts, the lover of the chase may seek in the recess of the forest, or in the wider range of extensive cultivation, the highly flavoured hog, the bounding antelope, the delicious quail, and the beautiful and delicate black partridge.

Then it is that we are rewarded for all our previous long-suffering—then it is that we truly enjoy life. No humid clouds float in the atmosphere to damp and chill the spirits, while the mid-day sun is tempered by a fresh breeze, giving a degree of elasticity to the frame rarely or ever experienced in England. Now it is that

the valetudinarian looks up, and the debilitated constitution rallies; now it is that those family movements are commenced, which have been the subject of anxious discussion during many tedious months—the wife, perhaps, is now compelled to submit to a temporary bereavement from her protector, in order to escort her children to Europe, or is driven by sickness, or her husband's death, to commence a dreary pilgrimage from the interior, to seek once more, in the bosom of her own kindred, that shelter and protection which from strangers she cannot hope to find.

Those officers whose tour of relief has not yet come round do not remain mere passive spectators, since they usually take an interest in the approaching departure of their neighbours, and enter into all the trafficking for tents, household furniture, horses, and houses, with a lively, and, frequently, gratuitous anxiety. The whole, therefore, of Upper and Lower Hindústan present one general scene of restlessness and agitation: our corps was not destined to a long march, being ordered to Cawnpore.

A cavalry regiment never commences its march at so early an hour in the morning as an infantry

corps. Instead, therefore, of starting at two or half-past two, the bugle never sounds to horse until daybreak, which is about four o'clock. Then the din and clatter produced by knocking out tent and picket pins, commence, and, as if desirous of participating in the bustle of the approaching moment, the horses add their loud and sonorous neighs to the tumult. To think of sleep after this réveillé, is quite out of the question, the sooner, therefore, the disturbed occupant jumps out of his bed and grapples with the freezing morning air the better. Cheroots with coffee or tea are immediately put in requisition. The first of these refections forms indeed so great a luxury to some persons, that I have known the head personal servant ordered by his master to wake him an hour before the time fixed upon for starting, in order that he might enjoy its solace in bed.

The march each day seldom exceeds fifteen miles, and its performance takes usually from three to four hours. The march to Cawnpore from Keitah is so short and the road so well beaten, that no stirring incident could be anticipated, and, accordingly, on the morning of the ninth day,

the corps marched into new quarters without encountering any accident by flood or field worthy of record. Cawnpore is situated on the right bank of the Ganges, 625 miles from Calcutta, and contends with Meerut for the honour of being the largest station in Upper Hindústan.

After the battle of Buxar this part of the country was ceded to us by the Vizier, since created King of Oude, whose kingdom is now restricted to the left bank of the Ganges, which forms the boundary towards Cawnpore. According to the terms of the treaty between our government and the king of Oude, we agreed to furnish him with a sufficient force belonging to our own army for the protection of his kingdom, and the support of the measures of his administration, should such aid be required; stipulating in return, the payment of a certain sum, and the entire reduction of the army which he had hitherto employed. The necessity, however, of maintaining an extra available force contiguous to the capital of Oude, in the event of any popular disturbance, has led to the concentration of a large body of troops at Cawnpore.

There is one disadvantage attending this ar-

rangement, of no trifling importance in a political point of view. The mass of the population of Hindústan are agriculturists, and the government look for a large proportion of the revenue to the land rent. It becomes therefore the duty of the existing authorities, as well as the desire of the farmers, that a market should be supplied for the ready disposal of the surplus produce, since according to the demand and the facility of sale must their rents rise or fall.

Now in Upper Hindústan there are not many military depôts at which agricultural produce is in great demand, consequently the few grand marts which it possesses should not, if possible, be established on the skirts of the British territories, but rather concentrated in the heart of the province, for the purpose of securing to the people an easy method for the disposal of their surplus seed and other marketable products.

A strict prohibition is given to the importation of corn from the Oude side of the river, but every one acquainted with Hindústan must know how numerous and easy are the facilities for the perpetration of smuggling, when the passage of a

large river, such as the Ganges, forms the only barrier to the introduction of contraband goods.

The situation of the cantonments at Cawnpore, therefore, on the skirts of the Oude dominions proves a very serious calamity to the people of the Dooab, and one unfortunately for which it is difficult to find a remedy.

Our first employment on our arrival was to look for houses. One was not large enough—the rent of the second appeared to be too high—while a third did not suit the views of the inspector, who intended by purchasing a house to save the expense of a high and extravagant rent.

Cawnpore possesses this advantage over many other stations, that houses may be hired at rents, which, although always high on account of the perishable influence which the climate exerts on all buildings in India, is to many persons, in bad circumstances, a matter of great accommodation. At all small stations, it is usual, for the officers of the *relieving* corps, to take, at a fair valuation, the bungalows belonging to those *relieved;* and if the purchaser be unprovided with sufficient funds, his

only resource is to borrow the money from a native banker at the usurious interest of 24 per cent.

Formerly it was the custom in all *well-regulated cantonments,* as sticklers " for the good old times" would say, to build the houses with some regard to regularity and order, particular portions being allotted to the field-officers, the lines, and for those of the junior grades. Moreover, an officer was obliged to reside in the lines belonging to his particular battalion; but all these frivolous and vexatious distinctions are now fast wearing away.

Not content with a perfect mastery over the subordinates in every iota connected with their official duties, the love of power, entertained by our military predecessors, rendered them desirous to establish the most arbitrary control, extending, even, to the regulation of the size and situation of every officer's residence,—an invidious privilege, which led, almost as a matter of necessity, to much vexatious interference with the domestic arrangements of the party subjected to this strict surveillance.

Although the liberalism of the day has relieved

the lower grades of military men from much of the despotism formerly exercised, the necessity of an unqualified obedience to the rules of the service, has not been lost sight of, it being as strongly inculcated as ever. A soldier's independence, it must be confessed, is exceedingly circumscribed, and may with ease be compressed into a nut-shell, its extent at the present day being readily gathered from the following lines in Hydaspes:—

> "I am a soldier, and my craft demands
> That whereso duty calls within earth's compass,
> Or the unmeasured scope of fathomless ocean,
> I do forthwith obey."

The cantonments of Cawnpore occupy an extent of six miles along the bank of the river. The present strength of the force may be taken at 6000 men. Several European merchants and shopkeepers reside here; and one enterprising gentleman has established an extensive soda-water manufactory, whereby, not only, the whole of the community at the place are kept constantly supplied with this grateful beverage, but likewise

every other station in Upper Hindústan. Moreover, two good ice-houses are maintained for the use of the community. The establishment is supported by subscription.

During the cold season ice is procured, by the exposure of shallow jars filled with water and covered with straw, on the principle of capillary attraction, in sufficient quantities to last throughout the hot winds and rains. The luxury of this article, in such a place as Cawnpore, can only be appreciated by those who have enjoyed the gratification which it imparts. The delightful sounds produced by the liberation of iced soda-water or champaign, full of promise to a thirsty soul, after a ride or drive through a scorching wind and a cloud of dust, are among the most musical and the most welcome that fall upon the Anglo-Indian ear. The subscriptions for the supply of ice are high; a sum amounting to 30*l.* being paid for a full share, which entitles the party to sixteen pounds of ice daily. This quantity is required for a family, for the purpose of efficiently cooling drinking water, butter, wine, cream, and the more delicate articles for the table, such as jelly, blanc-

mange, &c.; but a bachelor has no necessity for more than half a share.

In order to secure the proper supply of ice-creams on the night of any great entertainment, it is customary for the guests to contribute the whole, or a portion of the ice which they have drawn, to the holder of the feast; or, frequently, the latter will dispense with his allowance during several preceding days, in order to receive the whole on the morning of the party. The ice-house is opened at three o'clock every morning while the supply lasts; and the servants of the subscribers attend at that hour with large baskets, thickly lined with cotton, and covered with coarse red cloth: the ice, when served out, is deposited in a large blanket, which is folded carefully round it, and then placed in the basket. As soon as the servant has received his supply, the basket, which is suspended by cords from the end of a bamboo, and poised at the opposite end by a corresponding weight, is slung across the shoulders and brought home.

Should there be an Abdar in the establishment, he takes charge of it; but otherwise it is given

over to the care of the Sirdar, or head Hindú servant, who being employed to purify and cleanse the water used for drinking, takes the necessary quantity for that purpose, and delivers the remaining portion to the Khidmutgar, to whom the culinary department belongs. Sometimes the quantity of ice obtained in the cold weather is not sufficient to last throughout the two succeeding seasons, in which case the deprivation is severely felt. Formerly it was only at the stations of Upper Hindústan that ice could be procured; but in the last year or two, in consequence of the successful exertions of an enterprising American gentleman, several cargoes of this valuable article have been brought to Calcutta from Boston, in the United States, and sold at a handsome remunerating price.

So well established has this production now become, as an article of commerce, that a spacious ice-house has been built at Calcutta for its reception; and the inhabitants are now supplied with any quantity at a moderate charge. The first cargo arrived in the river Hoogly, in the autumn of 1832; but so sceptical, even then, were the

people of Calcutta themselves as to the possibility of the fact, that up to the moment of the arrival of the vessel off the city, they could not but consider it a hoax attempted to be played off at the expense of their credulity. Mr. Rogers, the spirited originator of this scheme, however, soon convinced them of the practicability of the undertaking; and, out of a cargo of 300 tons, originally shipped at Boston, landed 236 tons of good serviceable ice in Calcutta. The loss during the voyage being the difference between these amounts. The ice was packed in square blocks, or masses, with an outside covering of *tan*. In this manner it was stowed away in the hold, as tea-chests would be packed in a China ship, and so brought across the Atlantic and Indian seas. The well of the vessel was sounded every day throughout the voyage, and the ship kept as free from wet below as possible.

At Boston, I understand, large iron tanks are constructed for the purpose of freezing ice, which being cut out in cubes, is packed in thick layers of tan, and warehoused for shipment. Lord W. Bentinck was so pleased with the success of the

undertaking, that on the departure of Mr. Rogers from Calcutta, he presented him with an elegant piece of plate, bearing a suitable inscription indicative of his sentiments on the subject. Thanks, then, to our American friends, we are now better supplied with ice in Lower Hindústan than we can ever hope to be in Upper India, unless some plan can be invented to bring it down from the snow-capped Himalayas.

The want of a proper building at Cawnpore for the performance of Protestant worship, has ever been felt as a source of considerable grievance. As the service is performed at present, the solemnity of our worship is greatly compromised. Bishop Heber justly expresses regret at the circumstance, and assures us that he exerted his influence in vain, to induce the government to sanction the erection of a proper building. When at Cawnpore, Lord William Bentinck was urged to do something on the part of the authorities, but he refused, upon the plea that "they were too poor." He recommended the community, however, to get up a private subscription, saying, that should such a thing be accomplished, the

government would contribute towards it. I do not know any part of the world to which a portion of the funds allotted for building churches and chapels, could be more appropriately applied than in Hindústan. A grant has been made by the committee for building a chapel for the English residents in Greece, and surely *our own country*, apart though it be from the Parent State, possesses a priority of claim.

In a fluctuating society, such as necessarily exists in India, it is too much to expect that private individuals, with narrow incomes, should come forward with contributions for the erection of a building, of which, perhaps, they might never see the foundation-stone laid, much less participate in the enjoyment of its benefits. The sabbath is neglected in India; but can it be wondered at? since every one must be aware that the spirit of religion will soon evaporate from the mind, unless kept alive by the observances of external rites and sensible objects. True,—at all the principal stations there are government chaplains, and here and there a church; but while so much pains have been taken, by some well-

meaning persons at home, in burdening the state, by providing our Mahomedan and Hindú brethren (for which, doubtless, they feel grateful) with two additional English bishops, and a proportionate number of archdeacons and subordinates for their spiritual edification, the Protestant community at Cawnpore have been left, during a period of forty years, to offer up their devotions to Almighty God in the ammoniacal and stercorarian atmosphere of the dragoon riding-school, or the incommodious abode of a subaltern's bungalow.

Can we be surprised, therefore, I again ask, that disrespect should be shown to the sabbath, when we find such utter disregard paid by the rulers of the country to the duty which should urge them to provide proper churches for the performance of divine worship; and that gentlemen should be marched to their prayers, like schoolboys, by order, rather than by the impulse of inclination * ? Were it not for the necessity which

* The British officers of the native army have no Sunday parade, as their men, being of a different religious persuasion, are not expected to attend Protestant worship. To avoid the in-

existed for the presence of a clergyman, for the performance of the civil rites ordained by the canons of the Church, many of the chaplains might as well be in England as in India: and the respectable natives themselves, with great evidence of that strong common sense which marks their character, ask, and very justly so, "Pray, sir, has your nation no places set aside for religious worship? You can have no veneration for God, since you show more regard to the erection and decorations of your domestic dwellings, than to your place of worship."

To amuse, therefore, the people of England, by creating additional episcopalian dignitaries, with a corresponding number of subordinates, and at the same time to leave at least one-half of the Protestant community of Hindústan without a fit and becoming place of public worship, while the country is saddled with an enormous additional amount of

fliction of a headache, which a two-hours' respiration of the riding-school atmosphere was sure to entail, most of the Company's officers remained in their own dwellings. In 1830, the commandant insisted on their attending, and ordered them to assemble every Sunday morning, on the parade ground, and march to prayers at the head of the 11th Dragoons.

ecclesiastical patronage, is to offer them an affront which ought not to be longer overlooked. It is an insult to the devout and pious Christian; and it indicates a system of temporal jobbing which reflects no credit on the state, and cannot be defended. If I have expressed myself with warmth, it arises from the conviction that the importance of the subject demands the strongest demonstration of feeling, and I believe that I only echo the sentiments of a large portion of the English community of Hindústan.

It is the opinion of a very considerable number, all, indeed, who reflect upon the subject, that to urge that the state, after eighty years' enjoyment of undisputed territorial possession, of which the sole property is vested in the Company, is too poor to build a requisite number of churches, is both a violation of common sense, and an attempt at imposition too gross to be tolerated. Why has the missionary hitherto toiled in vain? Is it because he wants zeal?—the very circumstance of his having engaged in a labour, replete with so many difficulties, affords sufficient proof of his devotion to the cause which he has adopted. Is it that he is deficient in the talents required for the task?—His in-

defatigable attention to the pursuits of his calling, and the judicious methods by which he endeavours to promote the great object in view, warrant us in giving him credit for a due proportion of the intellectual faculties. How is it, therefore, that after years of labour on the part of the Parent Society in the selection of devout, zealous, and intelligent missionaries to preach the gospel in our Indian empire, that the cause has made such little progress? It is because they have no decent or respectable place of worship to which they might invite their benighted brethren, and which would afford suitable accommodation to the better classes, who, if wrought upon to admit the truth of revelation, would induce their inferiors to follow their example. In order to make an impression upon the minds of the ignorant in all nations, the spirit of religion must be supported, as I have before remarked, by an observance of external rites; and with the idolatrous people of Hindústan this necessity is paramount.

How much more gratifying to the Christian would it be to see, in the distant land of his exile, a neat and suitable building, erected in the larger

villages and towns of the country, instead of the mean and disreputable bungalows now employed for the performance of religious worship! Such buildings would attract the eye of the passing idolater; and should the promulgation of the gospel within its walls fail to arrest his progress, it would at any rate secure his respect.

Those houses at Cawnpore which are situated on the bank of the river, close to the water's edge, are the most in demand; they are, generally speaking, more commodious than those at a greater distance from the Ganges, and, many, have spacious pleasure-grounds attached to them. There are inconveniences, however, which counteract the advantages of these dwellings. They are infested by mosquitos of a more than ordinary size, which bite severely, and are exceedingly troublesome to the inmates.

Cawnpore can boast a ball-room far more spacious and elegant than Willis's, or any other public establishment in London: and there is, besides, a very handsome theatre, of the Roman-Doric order, erected by public subscription. This building was completed in 1829, at a cost of 2800*l.*

Scorpions and snakes are very numerous at

Cawnpore: the sting of the former never proves fatal to the human species, but oftentimes great constitutional disturbance is produced. The pain for the time is excruciating, and frequently the absorbents of the limb become greatly inflamed. In Lower Hindústan, scorpions are rarely met with; but in the upper country, and generally throughout the north-western provinces, they are exceedingly large and plentiful. I have seen one the size of the largest prawn.

Buffon declares that the sting of the scorpion is generally fatal. Now if he means by this assertion to include the human species, as far as my observation extends, he is decidedly wrong. My experience, however, will support the correctness of the dictum, if the remark be limited to the lower animals. More than once the shepherd has brought me, during two or three successive mornings, a fat sheep which he has found dead in its pen; and on these occasions, his impression, and that of the other servants, has been, that the aïïmal had died in consequence of being poisoned by a snake or scorpion. Search has proved the correctness of the opinion; for in every instance a large black scor-

pion was found in the thatch of the roof of the pen; and after its destruction the mortality ceased.

As circumstances admitted, I have found various plans of treatment successful in the speedy alleviation of the sufferings of the person stung. One is, to squeeze lime-juice over the injured part, and then to rub in ipecacuanha powder. Another is to lance the part affected, and afterwards to soak the bleeding incision in sweet-oil and laudanum,—in either case administering, internally, a full dose of the latter in a little mint-water, or other vehicle.

The sting of these little reptiles, as every one knows, is situated in the tail, and so extremely sensitive is it, that, on the slightest touch, it doubles back over the body its caudal extremity, and darts the sting into whatever vulnerable substance may be nearest. "*Bichou! bichou!*—scorpion! scorpion!" is a frequent cry with the domestics; and, writhing in the agonies of torture, they bring with them, on the ends of two sticks, the little reptile which has been the cause of their torment, and on which they are all the while lavishing the anathemata of their copious vocabulary.

Of the coluber class, the *cobra de capello*, or

black-hooded snake, is the one held in most dread in India, and the one most generally found at Cawnpore. A bite from this serpent effectually destroys life in a few hours. The existence of these snakes is a great drawback to the pleasure of shooting in Hindústan; for sometimes a sportsman, when intent on his game, and heedless of danger, does not survey the ground on which he is treading; and in consequence I have known more than one instance of friends of mine nearly putting their feet upon these frightful creatures. So deadly is their poison, that life is frequently extinct before medical aid can be procured; therefore, as a matter of precaution, in most houses in India, a bottle of eau de luce, or strong ammonia, is invariably kept on the mantelpiece in case of accident. It cannot but be a matter of astonishment, when we consider how minute the quantity of poison must be, which is injected under the skin, that the influence should be so sudden and destructive. So deadly, indeed, is the venom, that the body emits a putrefactive odour, even before the heart has ceased to beat.

I have had one or two very narrow escapes. The first occurred soon after my arrival in India.

Strolling out one fine moonlight evening into the fields, for the purpose of enjoying the fresh air, I came to a green sward, and was on the point of sitting down, when I espied a large cobra coiled up close beside me. The sudden start which I gave disturbed its repose, and the creature darted through one of the numerous fissures, produced by the long exposure of the earth to the baking process of the sun's rays, and disappeared.

Again, during my residence at Cawnpore, I killed under the matting in one of the rooms of my dwelling an enormous snake of this kind. It measured 4 feet 2 inches in length, and 4 inches in circumference. At the time it happened, a young acquaintance was in the house in the last stage of fever; and, amid a people so superstitious as the natives, the circumstance did not fail to be magnified into an omen of fatal import.

The discovery of this snake was most providential; for had it not been made in time, there can be no doubt but th more than one servant would have lost his life. The sirdar, or head house-domestic, had been in the habit of sleeping in a large ante-room contiguous to the one which was

generally occupied by me, and, as is usual with these people, he kept his few brass pans and little nicnacs in the corner of the place in which he slept. Having occasion, in the course of the day, to fetch something, he turned back the corner of the mat, and there espied the outside coil of this immense snake. I happened at the time to be in the verandah, at the further side of the house, with a friend, and at first understood the man to say, when he came running up, that some snake-catchers had arrived, and wished to exhibit their feats, and, as neither of us were in spirits at the time, we desired that they might be sent away. The man, however, further explained himself, and then we learned the true state of the case.

Having provided ourselves with a sabre and a spear, we advanced cautiously to the spot, and accurately ascertained the position of the creature by the appearance of the mat, which was raised by the body beneath. We then simultaneously made a cut and a thrust—the first cut severed the reptile in two; but, notwithstanding this mutilation, it gave a *loud roar*, for I can compare it to nothing else, and instantly projected its sable hood from

beneath the edge of the mat—finding the latter half of its corporeal frame, however, was not at its service, the creature again drew back, and disappeared under the mat. We had now nothing more to do than to complete the work of destruction, which was speedily effected; and after carefully taking the proper measures, and cutting out the bodies of two or three frogs, which were contained in the stomach, we had the satisfaction of casting forth the lacerated remains, which we did with no ordinary feelings of pleasure, to the winged scavengers of the air,—the kites and crows.

How the creature got into the apartment was for a long time a mystery, as the house had only recently been built, and was free from any contiguous rank grass, or rubbish. At length, however, we discovered, at the distance of several feet from the place in which the snake had been found, a large hole communicating with the hollow basement beneath the flooring, and through this aperture it must have entered. This proved the necessity of having every rat's hole found on the premises properly stopped up. The forebodings of the servants proved but too true. The poor

young man whom I had brought to my house a few days before, in the vain hope of benefiting him by a little change, sunk and died two hours after the destruction of this reptile, and of course confirmed for ever, the most sceptical among the domestics in their conviction of the fatality of the omen.

While on the subject of snakes, I am led to speak of the professed snake-charmers of Hindústan, whose extraordinary methods of proceeding, in the pursuit of their avocation, have rendered them obnoxious to great suspicion, public opinion being divided concerning the reality of their pretensions. As this singular question is by no means settled, it gives me great pleasure to be able to communicate some highly interesting information regarding these people, which I derived from personal observation.

While at Dum Dum, the hospital steward came to my residence one forenoon, to ask whether it would be agreeable for me to witness the performance of some Benares snake-catchers, who were in waiting. They had captured, he said, several snakes in his own garden, and now they wished to

know if they should exhibit their performance to the Doctor Sahib. I confessed that I much doubted their possessing the power they professed, and so was another medical friend who happened to be in the house at the time. However, we thought it a good opportunity to satisfy ourselves upon a point which has been so much mooted, and we determined therefore on putting these fellows to the test. To set about it in the most skilful and cautious manner was our first point of consideration. The result of our conference was a determination, in spite of its being twelve o'clock and a scorching hot day, to take the professors away to a distant and uninhabited house, the grounds of which were overgrown with all sorts of rank weeds and brushwood, and there set them to work. The baskets of snakes which they had brought with them were left behind under the charge of a trusty servant.

On arriving at the spot the three men were made to untwine their waistcloths and turbans, in order that no deception might be practised on us in that way, it having been frequently asserted that they go into the jungles with these reptiles bound up in their garments.

The charmers were duly allotted. My friend undertook the guardianship of one, the apprentices and hospital steward kept watch over the second, while I took charge of the third. We then diverged in opposite directions: to have outwitted us all, would, I think, have required more ingenuity than even Benares snake-catchers possess. I conducted my man towards a large tank or pond overgrown with briars and weeds. He soon struck up a monotonous buzz on his gourd, moving cautiously and slowly along, while I kept close at his heels all the time. We had not advanced very far into the thick grass before we reached a large prickly bush, when the man suddenly darted his hand at something, but in an instant drew it back, and resumed his music with more energy than before. Presently he made a second dash with his hand into the long grass and weeds, and in a moment out came an enormous snake, which he flung into the clear open space in the rear. In doing this he all but threw it into my face. We immediately ran back after it, and had it secured. At the request of the man, I was induced to liberate it, in order that he might show us the influence of his musical hum.

In a few moments after the buzzing had commenced, the animal appeared to be perfectly fascinated, and began to raise and droop its head in accordance with the music. Having satisfied ourselves that the notes really produced this effect, we proceeded to the examination of our prize. It was, we found, a cobra de capello, and by means of a forked stick, pressed behind the head, I was able to separate the lips so as to examine the mouth. I found both the poison fangs perfect, and I felt convinced, beyond a doubt, that the snake had been fairly and legitimately caught by our professional retainer.

I should mention, that, at the moment of seizure, the charmer received a prick in one of his fingers, about which he showed the greatest solicitude; abandoning the snake which he had just captured, he bound a ligature round his finger as tightly as possible, and then applied an amulet or some other preservative which he took from a little tin box, that he carried about with him. No subsequent inconvenience appeared to be felt, and very probably it was merely a prick from one of the thorns of the bush near which we were standing. We next directed our steps to a dilapidated out-office.

About this time the *Durwan*, or porter, belonging to the adjacent house, joined our party, and informed us that for several mornings past he had seen a large black snake, or *kala samph*, as he termed it, lying on the margin of the tank, for the purpose, he supposed, of waylaying the frogs. Our party now observed the strictest silence, and two of the men joined their humming strains together. Presently the glaring head of a snake of no small magnitude was seen peering through the mouth of a large hole in the wall, and as the music proceeded, he gradually drew forth his speckled form. The body having fairly emerged, precautions were taken to prevent a retreat, by securing the mouth of the hole, and in this manner a second snake was captured.

All the natives present decided that the animal now caught belonged to a harmless species, and the examination of the mouth confirmed the truth of this opinion. The charmers were very solicitous that we should spare the life of the snake, as they were anxious to add it to the collection already made, but we were deaf to their entreaties. These people profess to believe that should a snake be

killed while they are engaged in their professional duties, their influence over these reptiles will ever afterwards be lessened; and consequently, before they commence the pursuit, they usually stipulate that their captives shall not be destroyed. Having succeeded so well at this spot, we conducted the party to the place on which labourers were at that time employed in the erection of the Female European Hospital.

There being a great many heaps of bricks and other rubbish scattered about, we thought that our efforts would not prove in vain, and this surmise was very speedily verified: the men had scarcely commenced their strains, before we were visited by no fewer than three of those reptiles, which emerged from their residence among the bricks. We had now been out exposed to the heat for some time, and the sun being exceedingly fierce, we were obliged to content ourselves with these exhibitions. Whatever judgment the reader may form, the proofs, which we obtained, were sufficient to convince every individual of the party that the snake-charmers really did possess, by means of their music, the power they professed, and that they were not the empirics

which we had been accustomed to consider them. It is urged by many that these men hide their tame snakes about in different places before they apply for permission to perform. This may be true: and I have no doubt that sometimes they do impose in this way, but in the present instance I cannot believe that it could be the case. The places which we selected were at a distance, the sun was very high, and therefore they could scarcely have expected that European gentlemen would venture out; besides they proved themselves equally successful in places wide apart from each other. Can we then hesitate to give to these men the meed of credit which is their due? Before they took leave, they amused us by exhibiting specimens of the state of discipline to which they had brought their slippery companions. As many as six or eight would be permitted to crawl over their bodies at one time; and every now and then, one bolder than the rest would be seen to thrust his forked tongue between the lips of his exhibitor.

As a proof that these men do deal with *entire* snakes, and sometimes, unfortunately, lose their lives in their efforts to gain a livelihood, the follow-

ing fact, recorded in a native paper, published in Calcutta, will suffice:—"Two men of the Kowra caste, named Modhoo and Seboo, came by their deaths from the bite of a cobra de capello, on the 19th of December. They were snake-catchers, and imagined they knew muntras which had the virtue of taming snakes. Whenever they caught a new one, they were in the habit of making the most of it by making a show of it for presents. They caught one lately, of the species called gokra, and took it to the house of Baboo Kala-Chand Bose, and while playing with it (being rather drunk at the time, and therefore unable to manage it properly), they were both bitten by the venomous reptile. This was about two o'clock in the afternoon; they then went home, and one of them, Seboo, expired about dusk of evening. The other man was taken to the dispensary, but to no purpose—he died about eleven at night."

Of the influence which music exerts over snakes, and certain other of the animal species, there can, I think, be no doubt. Evidence is not wanting to prove that harmony has ever exerted a powerful influence over the human mind. Many of the

ancients speak of music as a remedy for every kind of malady. On the authority of Aulus Gellius we are told that Theophrastus and Democritus held the sound of the flute to be a specific for the bite of the viper; and Sir William Jones was assured by a credible witness, that two wild antelopes often used to come from the woods to the place where Sirajuddowlah entertained himself with concerts, and that they listened to the strains with the appearance of pleasure, "till the monster, in whose soul there was no music, shot one of them to display his archery."

Sir William Jones, in his paper on the Musical Modes of the Hindûs, enters very fully into the subject of musical influence, and says,—"That any medical purpose may be fully answered by music I dare not assert; but after food, when the operations of digestion and absorption give so much employment to the vessels, that a temporary state of mental repose must be found, especially in hot climates, essential to health, it seems reasonable to believe that a few agreeable airs, either heard or played without effort, must have all the good effects

of sleep, and none of its disadvantages; 'putting *the soul in tune,*' as Milton says, for any subsequent exertion,—an experiment which has often been successfully made by myself. Of what I am going to add I cannot give equal evidence, but hardly know how to disbelieve the testimony of men who had no system of their own to support, and could have no interest in deceiving me.

"A learned native of this country told me that he had frequently seen the most venomous and malignant snakes leave their holes upon hearing tunes on a flute, which, as he supposed, gave them peculiar delight; and an intelligent Persian, who repeated his story again and again, and permitted me to write it down from his lips, declared he had more than once been present when a celebrated lutanist, *Mirza Mohammed,* surnamed the Nightingale, was playing to a large company in a grove near Shiraz, when he distinctly saw the nightingales trying to vie with the musician,—sometimes warbling on the trees, sometimes fluttering from branch to branch, as if they wished to approach the instrument whence the melody proceeded, and at length

dropping on the ground in a kind of ecstasy, from which they were soon raised, as he assured me, by a change of the mode."

The practice of allowing snakes to crawl over the person, forbidding as it may seem, does not appear to have been exclusively confined to our Asiatic brethren, for I find a very curious illustration of the same practice having been at one time followed in England. It is recorded in a rare but valuable work, published in 1602, entitled "A Surveye of the Countye of Cornwall," by —— Carew. The style is so quaint, and the anecdote so much to the present purpose, that I cannot help quoting it.

"Touching venemous wormes, Cornwall can plead no such charter of nature's exemption as Ireland. The countrie people retaine a conceite that the snakes, by their breathing about a hazell wand, doe make a strong ring of blew colour, in which there appeareth the yellow figure of a *snake*; and that beasts which are stung, being given to drink of the water wherein this stone hath bene socked, will therethrough recover. There was such a one bestowed on me, and the giver avowed

to have seene a part of the stick sticking in it; but *penes authorem fit fides.*

"This mention of snakes called to my remembrance, how, not long since, a merry Cornish gentleman tryed that old fable to be no fable, which sheweth the dangerous entertayning of such a ghest. For he having gotten one of that kind, and broken out his teeth (wherein consistethe his venome), used to carrie him about in his bosome, to set him to his mouthe, to make him licke his spittle, and, when he came among gentlewomen, would cast him out, suddenly to put them in feare; but in the end, their vaine dreade proved safer than his foole-hardinesse; for as he once walked alone, and was kissing this gentle playfellow, the snake, in good earnest, with a stumpe, either newly growne up, or not fully pulled out, bit him fast by the tongue, which therewith began so to rankle and swell, that by the time hee had knocked this foul player on the head, and was come to his place of abode, his mouthe was scarce able to contayne it. Fayne was he, therefore, to shew his mishap, and by gestures to crave ayd in earnest of the gentle-

women whom hee had aforetime often scared in sport."

The speed with which some snakes will get over the ground, when pursued, is surprising. Riding along the road one day, I observed a snake of great size coiled up under the branches of a young mangoe-tree, which had but a short time before been watered. I called to the groom who was with me to get a stick as speedily as possible, and kill it, but, before he could procure one, the reptile had taken the alarm, and was making off. The man went in immediate pursuit on foot, when the creature accelerated its flight to such a degree, as to keep him for several yards at the top of his speed, and, I do really believe, would at last have escaped, had not the man hit him, by a well-directed aim, with a stone, just as he was on the point of dipping over the margin of a deep ravine. This snake belonged to the harmless kind, but was the longest I ever saw, measuring several yards in length.

Hitherto human skill has been baffled in the discovery of an antidote to the poison of venomous serpents; and although numerous expedients have, at

various times, been tried, I am not aware of a single one that can be fairly pronounced a decided specific. The usual practice is, to endeavour to promote the circulation, by the administration of the strongest of the diffusible stimuli; but frequently the deadly influence of the poison resists the power of every remedy of this kind that we can command.

Dr. Maxwell, of the Bengal Medical service, has kindly brought to my notice a remedy for the bite of venomous serpents, which appears well worthy of further trial. It is a plant that grows wild throughout upper Hindústan, and specimens which were procured for him, by one of his intelligent Mahomedan doctors, were forwarded to the Medical and Physical Society of Calcutta, and reported on by Dr. Wallich*.

The following story is told regarding the discovery of this remedy. A groom belonging to the 3rd Light Cavalry regiment, being out one day in the jungles, fell in with a fakeer, who was in great

* Dr. Wallich made it out to be Fricho desma—Pentand. Monogyn. Nat. Ord. Aspin, fol.; or Fricho desma Indicum—Borago Ind. of Indian Flora. Bengallee name for it being Chota Kulha —which of these two varieties Dr. Wallich could not readily determine.

distress. The man took compassion on the poor creature, and afforded him all the assistance in his power. The fakeer in return said, "Riches and honour I have none wherewith to reward your kindness—but I will impart to you a remedy only known to myself, which shall for ever protect you from the bite of snakes." He then told him the name of the plant, and the mode of preparing it. The plant is to be powdered, and as much as can be laid on a sixpence, from a drachm to a drachm and a half, taken for a dose in a little milk.

Every one on whom this remedy has been tried is said to have been saved; but knowing the necessity there is to take every native assertion of this kind with caution, I should not have been induced to place much confidence in it, had not a case fallen under Dr. Maxwell's own eye, the result of which fully confirmed the assurance of its efficacy.

While at Sultanpore (Benares), in medical charge of the 3rd Light Cavalry, he was one forenoon called on by his native doctor to visit a trooper, who had a few minutes before been bitten by a cobra de capella. The trooper, it appears, while sitting in the verandah of the hospital,

espied a snake stealing gradually and cautiously on a little bird, which had taken shelter from the mid-day sun under the shade of the roof. Before the man could succeed in frightening the reptile away, it had touched the bird and killed it; but in depriving the snake of its quarry, the man unfortunately exposed himself too much, and was also bitten.

The poison immediately took effect on his system, and in a few minutes he became lethargic. Foam appeared at the mouth, the animal powers grew prostrate, the lips and skin were livid, and, at the time Dr. Maxwell arrived, the poor fellow appeared to be irrecoverable. The plant above alluded to, being in very high estimation in the regiment, was procured at the first moment of the injury, and was immediately administered. It produced no sensible effect; but to the astonishment of every one the man rallied, and eventually recovered.

The snake, Dr. Maxwell assured me, was a cobra, as he himself examined it in the verandah, where it was lying beside the remains of the little bird; and being measured, it proved to be upwards of three feet in length.

CHAPTER VI.

Journey to Lucknow—Meet the King—Cavalcade—Royal Menagerie—Wild Man—Steam-Boat Excursion—Palace of Beeron—Public Buildings—Natural Resources of the Kingdom—The King—Aga Meer—Amusements—Death of Aga Meer—Prepare to leave Lucknow—Arrival at Cawnpore.

It is asserted by the people throughout Hindústan, that good or bad luck runs a course of seven years. The Persians have their *dies fasti et nefasti* as the Romans had. Should the star of an individual be in the ascendant, whatever speculations he may embark in; or however preposterous the *primâ facie* aspect of the undertaking may be, success will be sure to crown the effort, and return the shallop of adventure with a prosperous gale. Should the reverse of this be the case, and the unhappy mortal be in his septennial course of unforeseen misfortune, all the efforts of his judgment and all his discriminating faculties, it is said, will be exerted in vain, till the rule of Destiny's

iron hand is relaxed, and the tide of fortune has ceased to ebb.

To speak after the manner of the Hindústanees, then, I must consider the tide of my affairs about this time to have been in the flood; for one lucky accident succeeded the other with such rapidity, that before I had been in the country three years I had seen more perhaps of the manners and customs of eastern courts and eastern people, than many persons who had passed the best part of their lives in the Presidency. Circumstances occurred which about this time produced a change in the British representation at the court of Oude; and having the pleasure of the acquaintance of the newly appointed Resident, I was fortunate in being able to accompany him from Cawnpore to the seat of his new appointment, as Escort Medical Officer.

This march might be termed throughout a pageant on a very magnificent scale, forming altogether a scene of barbaric splendour, which can only be witnessed in an Asiatic country; it proved one continued series of bustle and excitement, but as it very closely resembled those stately pro-

gresses made throughout the kingdom of Oude by Commanders-in-Chief and other great persons, which have been frequently described before, I will spare the reader the details.

On the second day of the journey the King's adopted son met our cavalcade upon the road, and after halting to pay his respects joined company, and on the morning in which the Resident entered Lucknow, the King himself came out to meet him to give the welcome, which is so essential a part of courtly etiquette in India.

Our procession now assumed a very formidable appearance, and the most elaborate description could only convey a faint idea of the wild pomp and the dazzling confusion which it presented. As we approached the city gates we perceived the house tops to be alive and swarming with human beings, while the streets and alleys were crowded to excess. Thousands and tens of thousands had assembled to witness the grand *tamasha* (show), while our ranks were every moment becoming more dense, in consequence of the numbers of wealthy natives mounted upon elephants, who poured out of the highways and byways to

join the procession. The howdahs belonging to these animals were inlaid with silver and gold, and their housings of cloth of gold splendidly ornamented and formed of the richest manufacture of the East. In fact, the glittering wealth displayed upon this occasion realized all the notions which I had formed from tales and legends of Oriental splendour.

Considering their own and their masters' reputation to be at stake, every elephant-driver strove for precedence; and as the streets of Lucknow will not admit, in their widest part, of more than four elephants travelling abreast, consequently, from the moment of entering the city, urging and crushing became the order of the day. It was computed that upwards of two hundred elephants were present; and yet, as I have before stated, four could not travel abreast. The crashing of the beautiful howdahs, the liberal and unrestrained abuse of the different mahouts to each other, the cries for help and rescue from the rabble, who, tempted by the bits of silver scattered from the hands of the personal attendants on the King and Resident from a bag as they passed along, had

dashed, heedless of the consequences, under the bodies and between the legs of the elephants, and were in momentary danger of being crushed and trodden to death; the shouts that rent the air from the assembled multitude on the house tops; the cries of benediction and solicitation from the herds of religious mendicants at every corner and turning; altogether formed a scene that would require a far more competent pen than mine, to portray with any degree of accuracy.

Every now and then in the midst of this toil and strife, the eye would light on some dark-eyed beauty peering through a casement or half-blind, evidently alarmed at being seen, but yet having the foibles of her sex too strongly implanted in her breast to resist the proffered temptation; others again, less scrupulous, openly presented themselves, and many fair Cyprians of the city taking advantage of the general confusion taunted their renegade lovers with language of no doubtful import, clearly proving that the gallants of Lucknow were little scrupulous in the failure of their pledges of constancy and plighted faith.

On arriving at the Ferrad Buksh Palace, which

is near the residency, the King and the Resident alighted, and, accompanied by the rest of the party proceeded, through a large court, ornamented with several small ponds, to the interior. Ascending a flight of steps, we were ushered into a small ante-room, elegantly fitted up after the English taste, in which we were detained while his majesty re-adjusted his toilette. On his rejoining us the breakfast-room was thrown open, and with as little delay as possible each took his place at the table.

The King occupied a seat about the centre of the board, in front of the throne, the Resident of course being at his right hand. The breakfast consisted of curries, omelets, pillaus, jellies, dry toast, muffins, &c., with half cold tea, or *chah pawnee,* as it is significantly called. The etiquette of the Oudian court demands that the King should place on his own plate a slice of toast or muffin, and then present it to his most distinguished guest, together with a cup of tea. Should the visiter be a hookah smoker, he is, in virtue of his equality, permitted to enjoy his own chillum with his majesty, but no other individual of the party is allowed this privilege.

During the repast, different groups of Nautch girls were introduced, who, by their graceful pirouetting and vocal performances, contributed not a little to the enlivenment of this royal banquet.

The due number of puffs from the hookah having been emitted, and the forms and ceremonies of sitting through a certain quantum of time being gone through, the Resident asked for his *rokhsut,* or permission to retire, when the company dispersed. Our party repaired to the English residency, which is a noble elevated building, and the Mahomedan gentry to their respective homes.

Lucknow, it should be observed, is now the only remaining Asiatic court in Hindústan in which any thing like the observances of ancient Indian pomp and grandeur are preserved. The house of Delhi has long ceased to enjoy means adequate to the maintenance of any degree of state compatible with its former dignity, and perhaps ere long Oude may be in the same predicament. The mighty Seik Ruler of the Punjaub lavishes his ill-gotten wealth with the freedom of a despot, and supports establishments about his person which are

unknown in the courts of the western hemisphere. Among which, Runjeet Singh's corps of unmanageable Amazons, is not the least curious; his dominions, however, cannot be regarded as belonging to the empire of Hindústan.

I ought before to have mentioned, that on the present occasion, an individual accompanied our party, who has occupied for a series of years past a conspicuous post in the annals of British India; but as Miss Emma Roberts, in her highly graphic work entitled "Scenes and Characteristics of Hindústan," has given a very particular account of Colonel Gairdner, the person to whom I now allude, it is not necessary to enter into a fresh detail.

Amid the numerous sights which the city of Lucknow affords, none attracted my attention more strongly than the royal menagerie. To see this collection, it is necessary to have a private order from the palace, and a servant of the household usually accompanies the stranger to the keeper. I mention this place, in preference to several others equally interesting, because I do not recollect in the numerous recent sketches given to the world

of the city of Lucknow, that any account has been given of this menagerie.

The building presents a spacious quadrangular pile, the façade being inwards, with a line of pillars forming a piazza. Up and down this covered way the cages and dens of the animals are constructed. Sauntering about examining the half-starved tigers and other ferocious beasts and ravenous birds that were here congregated together, judge my astonishment at discovering, confined, in a line with these zoological specimens, a being belonging to the human race. The keeper styled him a wild man, or a *junglee ke admee,* and told a story of his having been dug out of a cave with two others in the depths of the Teryaee Forests which lie between the city of Fyzabad in Oude and Nipâl. That they understood no language, and consequently nothing could be discovered regarding them, more than they were *junglee ke admeean.* The sight of this poor creature filled me with very melancholy sensations. He had been provided with a low bed-frame, (I forget whether he was tied on it,) in a line with the tigers, and was duly exhibited as one of the varieties of un-

tamed animals. In height he was about five feet five inches, of a spare habit, and weak frame. His features partook of the ordinary cast of his civilized brethren, and had nothing of a ferocious aspect about them; neither had the body any superfluous or redundant hair.

At the usual hour his food was brought him with the rest of the caged animals; and, having partaken of it, like them he sank to repose. On my speaking to him, he uttered an unintelligible sound, between a screech and a yell. He seemed evidently unconscious of his degraded and melancholy condition; and certainly could not be regarded as a responsible being. I could not arrive at any accurate knowledge of his age. He had been in confinement about three years. To appearance he seemed about 25 or 26.

After a careful survey, I became impressed with the conviction that the miserable wretch was an idiot, and that the account which the keepers gave me must be considered as one of those florid amplifications for which the Orientals are so much distinguished. That creatures, however, in 'human form divine,' do exist in a state closely approaching

to wildness, I have sufficiently shown in the earlier part of this volume. The cannibals called Kookees, who infest the Blue Mountains lying between Chittagong and Ava, who live in the branches of trees, and feed on human flesh and roots, can scarcely be considered other than wild and brutish animals, and afford to the philanthropist and philosopher a field for melancholy contemplation.

There is a small steam-boat at Lucknow, belonging to the King, with which he navigates the Goomtee. On one occasion it was politely placed at the disposal of the Resident, and a pic-nic party was formed to visit a palace on the bank of the river, about nine miles distant from the city. The boat was fitted up, as might be expected, in a very perfect and complete manner, and was under the charge of an English engineer. Two swivels pointed over the sides attracted the attention of the passing crowd by their occasional discharges. Wood was used for the boilers, and answered extremely well. We steamed up in about an hour. This palace is called Beeron, or Beadoon, I forget which, and is built precisely after the English style, and may be said, perhaps, to be the only fac-

simile of an English mansion on the plains of Hindústan; Dil Khoosa, the palace which has been so often compared to an English nobleman's residence, being certainly not so English as Beeron.

On our arrival we found the servants of the King in attendance, with an excellent breakfast; I might call it déjeûné, since that word implies a field repast, occurring at any hour short of seven o'clock at night; and every attention was shown to the party which the most fastidious could desire. The day was spent, as such days usually are, in strolling about and examining the rooms and their contents. Some took their guns and sauntered through the grounds, which were in a most disordered state. We found laid up under large sheds a great number of old iron battering guns, some with carriages, others without. At the termination of the wars in Rohilcund, and the treaty with the English, these pieces of ordnance were put aside, and have never since been called into service.

As it was our purpose to return to the residency to dine, we re-embarked on board the yacht sufficiently early to be able to get back in time to dress. The day was propitious, and every one appeared

gratified and pleased with the excursion. There is a bridge of masonry across the Goomtee, and the materials for one of cast iron have been long stored up at Lucknow, but circumstances have hitherto prevented the King from giving the necessary orders for its erection.

There are many buildings remaining at Lucknow in an unfinished state ; a circumstance arising from an unwillingness on the part of the Mahomedan community to complete a building which has been commenced in the lifetime of another. Their would-be-thought zeal therefore in the cause of the Prophet, turns out to be merely a lurking ambition for the perpetuation of their own names. Whenever a building, whether it be a mosque, a tank, or a seraee, is undertaken, the originator is always sure to be the one who retains *the name*— and naturally enough, under those circumstances, a person entertaining an equal desire to obtain celebrity prefers, in devoting a sum of money to some useful public purpose, to commence *de novo*, rather than to expend it in the completion of the work of another, from whence he will derive no reputation. This national feeling, then, accounts for the dilapi-

dated, unfinished appearance of many erections which the eye frequently encounters when passing through large villages and towns. It likewise accounts for the extensive number of public buildings, and serves as a valuable illustration of the profound judgment which has been displayed by the primitive instructor of this nation. By teaching the people to establish their reputation on earth, and their beatification hereafter, by building new edifices, even to the neglect of the repairs or the completion of others, an appeal has been made to the strongest propensity of the human mind in the promotion of an object of the utmost importance. Every new work necessarily called forth the energies of a class of the community whose daily bread depended on employment, and who had only physical powers of a peculiar description to offer in return for the protection and subsistence afforded them by the ruling power. Nothing is more usual than to hear people exclaiming, as they pass through villages and towns, at the apathy of the government in allowing such and such temples, houses, and tanks to fall into decay. Many of these are in places in which no earthly advantage could

accrue from their repair; and the people themselves, if asked, could not probably give any reason for the selection of such out-of-the-way places for their site.

In natural resources this fine kingdom is not to be surpassed by any in Hindústan, but hitherto "its connexion with us has enervated its power, and kept it in a state of pupilage and imbecility." For the most part it consists of a rich alluvial soil, yielding, with little assistance, a yearly four-fold produce of the most exhausting crops.

The kingdom is divided into sixteen grand divisions, called Chucklas, which yield to the state a gross annual revenue of 1 crore, 28 lacs, 31,187 rupees (1,280,310*l.*), exclusive of the Lucknow villages assigned for Jagheer lands, valued at 7 lacs and 60,000 rupees (7,600*l.*) The force in Oude at present, exclusive of the British troops, amounts to 40,000, with proportionate quantity of ordnance. As in the whole of the Anglo-Indian possessions, so in Oude, the subjects have no right of property in the soil: it belongs exclusively to the crown. The land-rent forms the chief item of revenue to the state, and the King being the landlord, those

adventitious demands which are made on land in England, such as tithes, poor-rates, &c., are here included in the taking price. Half-a-crown may be taken as an approximation to the average rent per acre. Wheat is the principal crop. In addition to this, the treasury accounts present other items of revenue, such as—

	Lacs.	Rupees.
Rent for ground for bricks, lime-kilns, &c. .	0	20,000
Excise duties	0	10,000
The farm of newspapers	1	10,000
Mint	0	15,000
Bazaars and Markets	2	14,000
Salt and Custom Duties	2	00,000
Division, or Chuckla, of Shah Jehanabad .	0	16,000
	5	85,000
Or . .	£ 58,500	

Each chuckla is farmed out to a private individual, who engages to pay the government the stipulated rent; after which he becomes vested with the entire revenue arrangements of his province, as well as being constituted sole arbiter in all magisterial and judicial affairs.

It may well be supposed, that investiture with such extensive powers becomes an object of deep solicitude to ambitious minds, more especially as

it ensures the fortunate candidate the highest local consideration, together with the certainty of speedy riches. Whenever a division becomes vacant, therefore, every spring which promises to influence the venal court is unhesitatingly set in motion; and money offerings to an enormous extent are risked in tampering with suspected favourites.

By means such as these, men with not a particle of merit to recommend them often become vested with a power of fearful magnitude, and in proportion to the bribe they have paid for their post, they consider themselves afterwards entitled to extort and oppress the people. Can it be wondered at, then, that no fair system of civil or criminal justice exists in the distant divisions when the management is delegated to low individuals from the worst grades of society? Nawaub Ameer-ood-Dowlah, for instance, from the humble office of a fiddler, is now raised to the dignity of an aumil. His sister, who was formerly a dancing girl, having by her charms gained the royal favour, has become one of the King's wives, with the title of Tauj Muhauls; receiving for the support of her dignity a land grant, of which her brother, the Nawaub Ameer-ood-Dowlah, is the manager.

As an instance of the frightful extent to which this bribery system is carried, the following statement of Nusserana, given for improper indulgencies and favours to the late minister, Mooatummud-ood-Dowlah, or Aga Meer, as he is sometimes called, may be adduced. If their real amount bears any proportion to the sums stated, it will show the immense items directed from the general treasury into the coffers of an individual.

	Lacs.	Rupees.
The division of Sultanpore is said to have paid him	5	00,000
Bunswarra, not including other gifts	2	00,000
Nanickpore, Behare, under Gholam Hossein . .	0	25,000
	7	25,000
Or upwards of . .	£72,000	

It does not appear that the King connives at these acts of his subordinates. In a letter to his government, bearing date Nov. 6, 1832, the present Resident writes as follows :—

" From all I have heard of late of the conduct of the King, it appears to me, that he has no wish himself, generally speaking, to oppress his people, and also that he really regrets the disorder which now prevails, though he does not probably feel it

so much as a sovereign ought to do; I am likewise inclined to believe he has not himself received any part of those bribes which the aumils and farmers have lately paid to procure or retain their situations: but, nevertheless, time can only prove whether this country may not be as much misgoverned under the present King as it might be by an avaricious tyrant, because, unfortunately, his Majesty's ignorance of public affairs, and his general imbecility of character, are both extreme; so that he must always be a tool in the hands of others."

That the character of the present King is any thing but respected, we learn from the concurrent testimony of the two latest British Residents, which make him out to be a weak and incompetent prince.

"His present Majesty," writes the late Resident, "was bred up among women, and all his ideas are effeminate. He has no sound talents, and less habitude for business; and the government of his country must devolve upon our hands; but he is extravagant and wasteful in his expenses,

and will never be satisfied with any administration that attempts to limit his income."

In a letter to his government, under date 21st October, 1832, the present British Resident at the court of Oude, wrote as follows:—

"The King, I regret to say, is acting with lamentable folly, particularly in releasing a number of felons from the gaol, of whom between twenty and thirty are notorious robbers, whose apprehension was only effected by long and active exertion on the part of this government, and was the cause of relieving the inhabitants of several districts from constant alarm and much real distress. His Majesty has indeed gone through the form of taking security for the good conduct of these robbers now liberated, whose former crimes were notorious; but their habits are such, that no money can, I fear, have the complete effect of protecting the inhabitants of the country from their depredations.

"The indirect causes of these extraordinary acts on the part of his Majesty are, first, his very anxious desire to have a son; and next, his weak

belief in the efficacy of prayers and incantations of certain Fakeers*, who, being leagued with the criminals in the gaol, have persuaded the King that there was no chance of an heir to the throne of Oude, unless his Majesty would previously release a number of prisoners. His Majesty has of late frequently invited a number of Fakeers to the palace of an evening, when he puts on clothes somewhat similar to theirs, and after listening to their vague and pretended prophecies for some hours, he has loaded them with presents.

" The same anxiety for a son, and weakness of intellect in believing anything that his favourites wish him to believe, has led the King lately to act with great severity towards some of the females in the house of his wife, Mulkuh Zumaneah, who were accused of exercising sorcery, with a view to prevent the pregnancy of Soodsuah Begum. One of the females punished for this supposed sorcery, namely, Pearee Mulhaldar, died suddenly in confinement; and according to the general belief she poisoned herself, rather than submit to further

* Religious mendicants.

disgrace. The minister admitted to me that she died, but declared that she died a natural death.

" Another woman was sent to the camp of Durshire Singh (two miles from the city), to be flogged daily, till she should confess the crime of which she was accused; and it is reported in the city that she also has since died.

" The latter circumstance may not be true; and it is also possible that Pearee Mulhaldar may have died a natural death: for it is very difficult to ascertain such matters positively at a foreign capital; and I did not think it right to institute a minute inquiry into an affair of so purely a domestic nature; but the fact of the King's believing the accusations of witchcraft against Mulka Zumaneah's female servants, and of having severely punished several of those females for their alleged acts of sorcery, are certain; and I have thought it right to report those circumstances, because they serve to show the real character and conduct of the King."

I have selected the above official descriptions in preference to any of the numerous vague reports brought to me from less trustworthy sources. These

two extracts must prove amply sufficient to establish the character of the monarch for pusillanimity and ignorance.

I cannot, however, close this part of the subject without relating one anecdote, which I learned from his late minister, Aga Meer.

The King had become very fond of wine, but being anxious to maintain the character of a good and true Mahomedan, he experienced great difficulty in gratifying his desires, and preserving, at the same time, his consistency: at length a happy thought struck him, which fully succeeded. The hookah burdar, who is always a very confidential servant, was called in; when the King, knowing his man, explained to him his wishes, and directed that whenever he required any of the prohibited beverage that it should be conveyed to him in the hookah bottom. The hookah bearer was directed to bring him the hookah prepared for use; but instead of the bottom of it being filled as ordinarily, with water, it was to contain the life-inspiring Madeira. "Ullah Akbar," muttered the faithful attendant, as he left the apartment; "by the beard of Mahomed, the devil alone could have

put this idea into my master's brain." The man managed it so admirably, that the Nawaub assured me, the King was never without a cheering glass, while still retaining the character of a faithful disciple.

The foregoing remarks will serve to give the reader some idea of Oude and its King. In connexion with it I proceed to speak of an individual whose name must ever stand conspicuous in the annals of that kingdom. Mooatummud-ood-Dowlah, or, as he is more commonly styled, Aga Meer, may be said to have ruled the destinies of Oude during a long series of years. The King was merely a passive instrument in this person's hands, and whether we regard him in his public capacity of minister, or in his private character, we shall find that he equally merits the attention of those who study human nature.

Amid Anglo-Indians a more than usual degree of interest has attached itself to this person, the whole community having witnessed the remarkable events of his chequered career. It fell to my lot to be his medical attendant during a period of several months, and I therefore enjoyed many opportu-

nities of seeing him in his domestic retirement. The free entré of a native house can seldom be granted to any save a medical man, since partly in consequence of the official stiffness of an English functionary, and partly from the desire to preclude a possibility of incurring a taint of suspicion, Anglo-Indians usually avoid that free and confidential intercourse with rich or influential natives which might lead to an intimacy. Upon the occasion of a visit of ceremony, therefore, they do not endeavour to relieve their Asiatic acquaintance from that restraint which the cold observances of etiquette produce; and thus, while endeavouring to avoid one error they fall into another, for assuredly that must be so esteemed, which tends to preclude that social intercourse which would lead to a full and accurate acquaintance with the prejudices, feelings, and domestic manners of the people under our rule. Strange as it may appear, the Calcutta Government encourage this feeling, and discountenance all intercourse between their military officers and native gentlemen. Agreeably to orders issued upon the subject, before an officer in the army can visit a native of rank, he must

obtain permission from the chief local authority. All pecuniary transactions are strictly prohibited, and interchange of property only allowed on obtaining the sanction of government.

An exemption was necessarily made in favour of one class of public servants; the medical officers of the Company are free to visit any individuals, both professionally and privately, and as a compensation for the pittance granted to the majority of those holding civil appointments, the government allow them the exclusive privilege of private trading. As in the western world, so in the eastern, on occasion of domestic or private distress the medical officer is resorted to by his patient, for advice and assistance, and it must be gratifying to every member of the profession to know that this unlimited confidence has never been abused by the medical servants of the Company.

Perhaps a more striking example of the gradual progress of the emancipation of the native mind from the thraldom of superstition cannot be adduced than is to be found in the fact of the admission of English surgeons to attendance on respectable Mahomedan and Hindú families.

How stood the state of affairs fifty years ago? No man unacquainted with those mystical incantations called *Mantras* was for a moment thought of*. The Hindú physicians themselves, who were not Bramins, if they were ignorant of the Mantram suited to each disease, were regarded as incompetent and unworthy of employment, however much they might be entitled to it in other respects; and the English surgeons not possessing these infallible formulæ were, like the rest, doomed for a long series of years to suffer the fate allotted to the uninitiated.

With regard to Aga Meer and his family a feeling of friendship towards his physician had long been established, and indeed not without reason, for on a former occasion had one less trustworthy been placed about his person, his life would have been terminated at an earlier period. The agents of the King of Oude had the audacity to offer the English physician who was in attendance on the Nawaub

* "The Mantras are certain forms of prayer or words of efficacy, which have such virtue as to be able *to chain the Gods themselves.* They are of various kinds, invocatory, evocatory, deprecatory, and conservatory." Abbé Dubois, chap. x. p. 97.

during his imprisonment at Lucknow £10,000 to compass his destruction. But I am anticipating my subject. So great is the reputation which the medical officers in the Company's service have gained for themselves, that in order to benefit by their advice the strictest Mahomedans will now wave their stern religious prejudices, and admit them into the most sacred apartments.

The conflict, however, between affection on the one side, and deep-rooted prejudice on the other has often been strongly exemplified. A striking illustration occurred in the person of the ex-minister himself. His daughter had taken the veil, or, as it is termed, gone behind the purdah, and, according to the usage of the country after that ceremony, none besides her kindred and attendant *Hubshees*, or Abyssinian slaves, can be allowed to see her. This young Mahomedan girl was taken dangerously ill, and after the usual remedies of the Zenana had been resorted to in vain, and much valuable time lost, the painful question arose whether I should be admitted or not. The Nawaub, whatever his faults might have been, was a kind and considerate parent. He saw, when it was too late, the

folly of wasting time by futile remedies; and, with tears in his eyes, he opened to me the distress of his mind. "From this moment," said he, "I must ever regard you in the light of a brother, and as a brother you will keep inviolable and sacred the confidence which I repose in you. Come along: God is merciful and just, as well as great, and may crown your efforts with success." I accompanied him to the Zenana, but the patient was too far gone—the disease had reached its last stage, and in a few hours the favourite daughter became a corpse.

Aga Meer was a man whose motley history serves as an excellent illustration of the operations of a government regulated by a single tyranny. He was endowed with almost all those perfections which tend to produce excellence in the human character, but which may be readily perverted to evil. His understanding was vigorous, profound, and of peculiar quickness. He perceived at a glance the nature of an object, however complicated; the means for attaining it, the circumstances that might interfere with the application of those means, and the most efficacious way of surmounting obstacles. It may be said of him that he was

intemperate even to profligacy, the slave of vanity and of wild ambition, and that he regarded his country merely as a scene created for the gratification of his love of pleasure, of power, and, above all, of splendour and of the admiration of mankind. He is said to have been born a scullion, or the son of a scullion, but I believe neither to be the case; although there is no doubt of his being of low extraction. To himself alone is due the merit of having risen to the highest honours of the kingdom. Had he served under a master fit for rule, how different might have been his conduct! Instead of giving all his energies to the good of his country, as, in that event, he must have done, he soon discovered that his own security rested in the imbecility of the monarch by whom he was employed.

The powerful Saadat Ali was very ill represented by his son Ghazee-ood-Deen. On the abandonment of our active control in the affairs of his kingdom, he gave up his authority entirely into the hands of his minister. Under the change of system, Aga Meer was not slow to perceive that his strength and security no longer rested in the

favour and approbation of the British Government, but in the partiality of his weak and imbecile master. From that moment self-interest became the principle of his rule, and the benefit of his sovereign was as little regarded by him as the pleasure and advice of the British Government. Throughout the whole of his administration he unflinchingly opposed those measures of reform for the benefit of his country, which were recommended to him by the Calcutta authorities, because he found that they interfered with his own emoluments, and yet so able was his administration, that we are told in one of the official minutes, "that in his time the capital and its environs were as safe and well guarded as any city in India, and that since then the streets are the scenes of nightly robberies and murders, and that the roads in the vicinity, which might at that period be traversed without fear either by day or by night by unarmed individuals, are now so beset by thieves and desperate characters that no one thinks of passing along them without protection."

On the death of Ghazee-ood-Deen, Aga Meer retired from office, and kept aloof from all active

interference, although repeatedly solicited to take an active part in the affairs of government. He was too wary to endanger himself, until his safety was guaranteed by the British Government. No sooner had he resumed his post, than he brought all his influence to bear on his present Majesty, and speedily succeeded in getting him as much under his will, as he had before done with Ghazee-ood-Deen. After that, he found he might, as before, follow, without fear of offending his master, any course of policy which he approved. His ambition knew no bounds: he became absolute. The King and his kingdom were both within his grasp; and he cajoled the one and impoverished the other, just as it suited the dictates of his inordinate avarice. At length a change took place. On the occasion of Lord Combermere's visit to Lucknow, in 1828, his Majesty, at a private conference, announced his determination to dismiss his minister. Had our protection not been guaranteed to him, there is little doubt that his life would, at this time, have been sacrificed.

On returning to the audience hall from the private closet, the King lavished on his minister

more profusely than ever his princely favours, and in a few hours after held him in close confinement. Aga Meer immediately claimed the protection which had been promised him; and as this could not be withheld, the British Resident, the more effectually to secure him from outrage, ordered that the whole of the guard should be furnished from the British troops.

The palace of Doulutpore, which served as his place of confinement, was a building erected by himself in the most extravagant and splendid style. The guard consisted of a captain and two subalterns: and for the expenses of their table, the now ex-minister made a princely allowance of 50 rupees, or £5 sterling a day. Weeks and months rolled on, and still the King peremptorily refused to release his prisoner. He consented, after repeated remonstrances, to allow him to retire into the British dominions, but without his property. This permission was tantamount to a declaration of perpetual imprisonment; for Aga Meer would naturally prefer being kept in confinement in his own palace, surrounded by every comfort, to wandering in the Company's

territories a beggar and an outcast. At length the unceasing energetic appeals and remonstrances of the British Government prevailed, and permission to leave the country, accompanied by his family and his wealth, was reluctantly granted.

After an imprisonment of four years, Aga Meer set out for Cawnpore, with a train of waggons which extended for miles along the line of route. A strong escort of horse and foot from the British force at Lucknow was appointed to protect him; and in addition to this, a large body of the European and native troops at Cawnpore were kept under orders to march at a moment's notice, in case the King of Oude's troops should make an attempt to intercept his progress and despoil him of his property; an outrage which there was some reason to expect, and which, in all probability, was only prevented by these precautions.

The distance from Lucknow, the capital of Oude, to Cawnpore, is fifty miles; and marching at the ordinary rate of twelve miles a day, occupied four days. The whole of the fifth, and the greater part of the sixth day, were employed in transporting the vast wealth of the ex-minister

across the Ganges. The King of Oude, it is said, in order to vent his spleen on his fallen servant, and to remove so obnoxious an object from his sight, caused the magnificent palaces of Aga Meer to be razed to the ground. Aga Meer fixed on Cawnpore for the place of his residence, and purchased an elegant château, delightfully situated on the right bank of the "sacred" river.

It was at this time that my acquaintance with him commenced. His former physician being unable to accompany him, I had the honour of being selected in his stead. I visited him regularly once, and sometimes twice a day; my time for calling being usually about seven in the morning. At this hour I generally found the Nawaub sitting cross-legged on a low bedstead, called a charpoy, attired in a loose white muslin vest, smoking the hookah. If he happened to be in the zenana when I arrived, one of the attendants would call him, and he immediately came out to receive me. At first he took the greatest interest in his new residence; and shortly after his arrival, finding one mansion not sufficiently commodious, some friends negotiated for the pur-

chase of another adjoining the one he already possessed. I was generally requested to accompany him, in a tonjohn, round the grounds, to witness the alterations and improvements made from day to day.

When the novelty wore off, these scenes of retirement soon lost their charm; and, after a few months, I used frequently to find him contemplative, and hurriedly going over his beads. Should either, or both of his sons, who were fine young men, the one about eighteen, the other sixteen, happen to make their appearance at this time to pay their morning visit, he would often keep them waiting several minutes at the tent-door, before giving them the entré recognition. On first approaching their father, they bent and touched their foreheads with their right hand, and then waited to be spoken to by him before they ventured to approach, or utter a word. Until this salutation had been made, it was not considered correct for any one present to address them. After sitting in a ceremonious manner for a short time they would rise, and take leave in the same manner as at their entrance. A high and settled

resolution was strongly marked on the countenance of Aga Meer: he was a perfect master of dissimulation. He never allowed himself to be betrayed into expressions of anger before strangers, and would even conceal his feelings while labouring under great bodily pain. When not under the influence of the goadings of remorse, which at times appeared to assail him, he would enter freely into conversation.

The Nawaub had a large circle of acquaintance among the English at Cawnpore, and was very fond of entertaining them at breakfast, which is the fashionable meal among Mahomedans of rank. On these occasions he would introduce nautches, pigeon-flying, and ram fights.

Once, I recollect, a whimsical affair was got up, which afforded great entertainment, especially to the native portion of the company. Two men came forward in the character of Caubul horse-dealers. They met as strangers, and were all politeness; having exhausted their stock of compliments and idle nothings, they touched cautiously on their respective pursuits; the subject warmed and the conversation grew animated. Each was

lavish in the praises of his own cattle, and every steed in his possession was in speed a Mazeppa, and in skill a Bucephalus. So far all went on smoothly, but presently an unfortunate sneer thrown out by one of the interlocutors called for a sharp retort from the other. The *fortiter* now succeeded the *suaviter*, and all was bluster and abuse, until the arena on which they stood became too small for their inflated passions. At length, having expended their vocabulary of abuse, of which the Oriental language is by no means scanty, they gradually softened, explained, and parted friends. The entire performance occupied about half an hour, and was well conducted throughout.

The ram fights were never very attractive. It was merely a brutal butting of heads, as long as the company chose to lend their sanction to it by looking on; but the pigeon-flying was an exceedingly entertaining amusement, and is well deserving of notice, from the wonderful state of perfection to which it is brought. The people of the East are perfect adepts in this art; skilful persons being entertained in a great man's establishment for no other purpose than that of training; and so accu-

rately are the pigeons instructed that they obey the word of command like soldiers on a drill. For instance, a flock of twenty copper-coloured birds being uncaged, they will hover round, mount aloft, or descend low, agreeably to the direction of the conductor, who regulates their movements by his voice and a wand.

A flock of white-coloured pigeons will next be let loose, and, in the scramble to get away, some will become mixed with the first flock already in the air; indeed in a few minutes perhaps the whole, or nearly the whole, become mingled. They are now to be seen flying about in all directions, and to separate them, and bring them down, would appear to be impossible. With his wand and a whistling chirp which he adopts, the conductor sets about his task, and in a few minutes an evident alteration is perceptible in the movements of the feathered tribe. They have already noticed the signal of their master, and are acting accordingly. The white birds following each other, separate from their brown companions, and form two distinct flocks.

As soon as this is effected, a third flock of blue

birds is uncaged, and away they go into the air to join their companions, and, flying wild for the first few minutes, get mixed up promiscuously with the brown and white birds. There are as many now, perhaps, as fifty or sixty birds in the air, flying round and round, now darting to a considerable distance, afterwards returning again, and all this time under the control and apparently spell-bound by the man on the ground. The signal is once more given, and an immediate separation of the birds is observable, each joining its own colour.

The three flights now fairly apart, go through a series of evolutions in the air—some tumbling, others mounting perpendicularly, and then falling suddenly down; then, as if going into combat, one flock will attack the other, passing rapidly through the phalanx, then wheeling suddenly round and renewing the attack; and this they will repeat over and over again until called off. When at length the scene closes, they are summoned down in parties, and after partaking of a cold collation which is provided for them, in the shape of some choice grain, the doors of their cages are opened, and they strut in as if conscious

of the feats of skill which they have just been performing.

The Nawaub did not live long after reaching Cawnpore. As before mentioned, he soon grew tired of retirement; moreover, he was advanced in years, and his constitution began to lose its elasticity and vigour. He gradually lapsed into despondency, which predisposed him to disease. The people about him too got dissatisfied. Cawnpore was a mere military cantonment, and they could not procure, in the small town contiguous to it, either society or merchandise, such as they had been accustomed to and now absolutely required. These facts coming to the knowledge of the Nawaub fretted him. He knew that they would not leave him as long as he lived, but yet he was aware that they did not care how speedily that event should happen, in order that they might the sooner get back to Lucknow.

The first wife, or Burra Begum, as she was styled, I fear participated in this feeling, if we may judge from her extravagant conduct during the last illness of her husband. I had bidden farewell to the Nawaub, and quitted Cawnpore to take an

appointment in the Sagúr and Nerbudda territories, which the Governor General had honoured me with, before my native friend was taken ill of a fever, of which he died. The physician who attended him during his imprisonment at Lucknow had now resumed the charge; and I cannot do better than give the description which he sent me of the last illness of this extraordinary man.

"Cawnpore, May 29th, 1832.

"The complaint of which the Nawaub died was bilious remittent fever, which carried him off on the seventh day. Strange to say, he refused to take any medicines after the second day, and he regularly fell a victim to the ignorance and superstition of his Begum and others, who persuaded him to take nothing but tamarind and barley-water. I did all I could to prevail on him to take the proper remedies, but his *strong mind* was weakened by the disease, and all the superstitions he had imbibed in his youth seemed to have again taken hold of his imagination.

"I took down Major ——, who, with Mr. ——, his eldest son Ameen-ood-Dowlah and myself, employed every argument to induce him to take

medicine—but in vain. He begged of us to wait from day to day, in the hope, as he said, that he might gain a little strength; one day was unlucky, and another day was lost in trusting to the superstitious assurances of the Fakeers, and in propitiating *Ullah*, by giving gifts to the poor. In this way things went on till the poor man expired. He embraced me, and begged of me not to be angry with him—called me his brother, and said our hearts were one; still he delayed to take the *remedia*, and, alas! he breathed his last on Sunday evening, the 6th instant.

"I was with him constantly during his illness, and till his dying moments, as long as he was sensible, which he was almost to the last—he pressed my hand warmly, and appeared to wish to say something, but his breathing was then laborious and his voice inarticulate. He died in a very remarkable manner, but as calmly and as composedly as any man can be supposed to die. At the request of his eldest son, I attended his funeral as one of the chief mourners. His remains were first taken to the Ganges river to be bathed, and afterwards, at sunset, prayers having been read over the

body, the mortal remains were, at his own request, buried in the centre room of one of his new houses (of which he was so proud, as you may remember), and which has now become his mausoleum."

Nothing has been considered too much to say in accusation of the Nawaub Mooatummud-ood-Dowlah. His enemies charge him with every crime. He has been said to have waded to power through streams of blood, not even hesitating to desecrate the altar of the sanctuary. I am not competent to offer an opinion respecting the truth or falsehood of these accusations.

Calumniare audacter aliquid adherebit*,

is the remark of an old and wise politician, and is the condition of all who enjoy power at an Asiatic court. There is too much reason, however, to fear, that if he did not order, at least he sanctioned, many of the cruel and revolting acts which have been laid to his charge; indeed, the fact of his attaining the post which he enjoyed in a despotic government, such as Oude, where *sic volo sic jubeo* is the dominant rule of conduct, affords

* *Machiavel.*

sufficient proof that more than an ordinary deviation from the strict line of rectitude, must have been pursued to have enabled him to effect so rapid a rise.

Aga Meer enjoyed the interest of the million sterling, advanced to our government by the late King, up to the day of his death; and it is now apportioned out between his wives and his two sons. Although he transported with him to Cawnpore an immense quantity of hoarded wealth*, his chief dependence was on the interest of this money. He got possession of it through a deed of gift, which he presented on the death of the late King, wherein this loan was assigned to him as a reward for his services. The present King did all in his power to upset the document, but the English Government, seeing no reason to doubt its validity, considered it binding, and have regularly paid the interest to the present time.

* The quantity of Cachmere shawls he had with him was immense. When thrown into confinement the boxes which held them were put into a damp chamber, and when they were opened at Cawnpore I recollect being a witness to the dreadful havoc which the white ants had made. Shawl after shawl, of the richest and most costly description, was taken out perfectly riddled with holes.

As the time drew round for my departure from scenes of so much novelty and amusement as the city of Lucknow presents, it was arranged by a friend, who also desired to return to Cawnpore, that, to avoid the inconvenience of a palankeen, we should send on a relay of horses and drive over the fifty-five miles in a stanhope, having a hood, which had been offered to us.

On the morning of our departure, the Resident had kindly sent out some domestics to Nawabgunge, a distance of eleven miles, with directions to have breakfast ready for us by the time we came up; and, to lessen the fatigue of the journey as much as possible, he lent us an elephant, to take us the first stage.

We left Lucknow at the "top of the morning," on the 30th July, and found, on reaching Nawabgunge, everything that we could wish. Losing as little time as possible in getting through our morning repast, we sent back the establishment and the elephant, and took to the stanhope. Roads in Hindústan are by no means calculated for the pliant springs of such a vehicle; and this we soon found to our cost. The progress we made was

very slow; and, in spite of our precaution, in crossing a deep rut, we were brought to a complete stand-still, by the springs of the left side cracking in two. This accident occurred in the middle of a large field, without a tree to protect us from the sun, which was just then shining very fiercely, although for the greater part of the morning it had been cloudy.

We now would fain have taken to our palankeens, but they were still behind, at Lucknow. I scarcely know what we should have done, had not two men passed us at a distance. We shouted to them with all the strength of our lungs; and as soon as they heard us, they put themselves out of their way, and came to our assistance. They were two Oudhians, on their road to Sultánpore. Their aid was invaluable. Our syce, or groom, or tiger, to use the fashionable term of St. James's, had just come back with a bamboo, but without being able to procure any cord. One of these men did what could never be expected that he would have done: he unwound the strong closely-twisted cord, which is carried, by all natives when travelling, round their little brass jars, or lotahs, to

enable them to draw water from the deep wells on the road-side when thirsty, and allowed us to use it in lashing the bamboo across the axle, and making the vehicle once more serviceable.

In return for this act of great good nature, we wished to remunerate the man handsomely; but, as is the case with most gentlemen in India, we had no money about us. However, we gave him a note, written in pencil, to our friends at Lucknow, and explained to him, that if he called with it, he would receive his present.

A second break-down occurred, before we reached the end of the third stage; but having materials now at hand, we soon remedied the accident. At Oonao we found grooms waiting with saddle-horses; orders having been previously dispatched for them to be in readiness at this place. Notwithstanding our two unpleasant adventures, the sun was still high when we reached the town; and as we had now time to spare, we adopted the prudent course of resting awhile amid the shade of a fine tamarind-grove.

We had not been seated long ere another voluntary display of good nature occurred; and although

the recital of these circumstances may appear trifling to some, yet I record them for two purposes: the first, to show the respect which Mahomedan natives entertain for the English, even in a country not under British rule, and where no secret motive could possibly operate in influencing them; and secondly, to uphold, whenever I am able, those pleasing traits of the Moslem character—civility and gratitude.

A portly personage, with half a dozen attendants, approached us from a newly-erected stone house, and in the politest manner begged us to partake of the hospitality of his mansion. At first we declined, but feeling that a draught of his proffered sherbet would be extremely grateful and refreshing, we consented to accompany him. On our entrance, our host conducted us at once through the house into his garden, which boasted an abundance of orange-trees and limes, pomegranates, and custard apples.

On our completing the inspection of these orchards, we found the servants prepared with the materials for the brew. The old gentleman superintended it himself, and took an evident pleasure

in the task. He prepared two kinds,—a tamarind sherbet, and a lime sherbet; the latter I preferred to the former. It was certainly very delicious; and, drank under the circumstances in which we were then placed, seemed to us to be nectar itself.

This respectable man "had passed the best part of his days," he told us, "in the employ of our government, as sherishtadar, or head native judicial officer of the civil court at Ghazepore. That he had subsequently retired to his native town, where he had built himself a house, which we now saw; and that, seeing two English gentlemen waiting under a tamarind-tree, he felt that he (the slave) was only performing his duty when he invited the Company's officers (whose nation's salt he had so long eaten) to honour his house with their presence."

We both appreciated the good man's attention, and gave him hearty thanks on taking leave. Refreshed and cool, we mounted our horses, galloped down to the Ganges, and were across to cantonments in time to join a jovial party at the mess, and answer the thousand-and-one interesting queries put to us by inquisitive companions.

CHAPTER VII.

Marquis of Hastings—His Works of Public Utility—Delhi Canals—Canal of the Dooab—Flourishing condition of the Villages—Discovery of an ancient Town—Antiquities—Capabilities afforded by the Canals—Views on Agriculture—Advantages of good Roads—Seasons of Famine—Great Mirzapore Road—Substitute for Bridges—Benares new Road.

No ruler who ever presided over the destinies of India was more beloved than the Marquis of Hastings, and his memory still lives in the recollection of all classes. The portrait of this highly esteemed nobleman will be found occupying a conspicuous place in apartments which have no other pictorial ornament; and the period of his government is always referred to as one which reflected the highest honour on the administration of public affairs.

Popularity in India is only to be gained by conduct which will bear the test of time; and it is, therefore, not of so evanescent a nature as that which follows the career of many political aspirants at home. The attachment which Lord Hastings

inspired was based upon very firm ground, since no man ever did more to promote the interests of the country. His administration, together with that of Mr. Elphinstone at Bombay, may be considered to have opened a new era in the annals of British India. They both professed to recognize, and both acted on the principle, *that great and useful works for the good of the nation ought to be formed and maintained out of the means which government levies from the country and the people.*

The noble Marquis was not content with calling for returns and reports, and making a great appearance of doing good, but, as soon as he got fairly settled in his government, he actively set about the works themselves. He felt and believed, that of all instruments of production formed from the material and intellectual stock of mankind, canals and roads were the most important. With this impression on his mind, he set about re-opening the Delhi canals, and cutting roads, which, had they been carried out as he projected, would by this time have advanced the people of Hindústan 100 years further in civilization.

The re-opening of the old canals which inter-

sected the province of Delhi, projecting a new one to the east of the Jumna, and cutting a new road from the commercial town of Mirzapore on the Ganges into the heart of Central India, were among his earliest and greatest undertakings, and are well deserving of especial notice.

The first of these great works of public utility consists in re-opening the canal of Ali Merdan Khan, or the city of Delhi canal, extending from the hills at Rair on the Jumna, to the city of Delhi, a distance of 185 miles; also in re-opening the canal of Feroz Shah: main branch, from Rair to Bahaderah, 151¼ miles in length; Rhotak branch, 45 miles long; Darbah branch, 32 miles long; new supply head, 12 miles long.—Total length, 240 miles; and projecting a new line of canal through the country east of the Jumna. This canal has been completed within the last eighteen months. The main branch is 135 miles long, and the side branches 25 miles.

The canal of Feroz Shah affords a striking illustration of pleasure having proved subservient to public good. This monarch, it appears, was fond of indulging in the pursuits of the chase; and dis-

covering that the best lion-sporting was to be found in the district of Hissar, he frequently resorted thither with his court for the purpose of enjoying this noble exercise. His retinue being very extensive, great difficulty was experienced in providing water for the cattle, as the country thereabout is sandy and very dry. So arid, indeed, is the soil, and so scanty the supply of water, that it is often necessary to sink to the depth of 130 feet before it can be found, and then it not unfrequently happens that it is so brackish as to be unwholesome! Like a true Mogul emperor, therefore, the monarch issued his commands for the formation of this canal.

Feroz Shah ruled over India in the middle of the fourteenth century, and, to judge from the extensive ruins scattered over a space of many square miles, must have passed a considerable portion of his time at Hissar.

He appears, however, to have been aware of the utility of such undertakings; for, besides this grand canal of Hissar, he caused one to be excavated to the city of Delhi. Feroz Shah, therefore, could not have been inattentive to the wants of his people. Although personal gratification was

doubtless the motive which actuated him to issue his mandate for the first undertaking, the comfort of his subjects evidently prompted him to undertake the second. The province of Delhi, therefore, has been, we may say, particularly favoured from the time of Feroz Shah, for in no other part of Hindústan do we find any works of such vast importance.

Abul Fuzul mentions in the Ayeen Akberry, or Institutes of Acbar, that Hissar was founded by Sultan Feroz; that he dug a canal, which brought the water of the Jumna near the city. A derveish predicted his accession to the throne; and at the instance of this derveish he dug the canal.

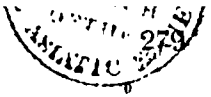
These two works thus successfully opened, appear to have been maintained in a state of efficiency till the year 1760.

At that time the Moghul empire had received its mortal wound from the commotions which arose amongst the sons and grandsons of Aurungzebe; when, in short, it was no longer guided by the skilful and vigorous hand which had diffused wisdom and spirit throughout its vast machine; every sovereignty being in a state of anarchy

and rebellion. In common with all other public works, these canals were allowed to fall into decay; and, to other causes, may be added, the gradual increase in size and depth of what was then the western branch of the Jumna; which rendered the annual formation of the earthen dam across that river, in order to raise the water into the canals for the irrigation of the crops, a work of more difficulty and labour than was compensated for by the advantages which it afforded.

During the long period in which it flowed, judging from the multitudes of water-courses which intersect the country on both banks, from below the town of Kurnaul to the city of Delhi, irrigation from its waters must have been universally resorted to.

The attention of the Bengal Government appears to have been drawn to the importance of re-opening these canals, by a Mr. Mercer, shortly after the Delhi country fell under the British rule. This gentleman offered to re-open the Delhi branch at his own expense, provided the government would guarantee to him the whole benefits, for a period of twenty years after its restoration.



The offer was declined; but a survey and estimate were ordered, which, when completed, were like many other surveys and estimates of a like nature, carefully put aside for a future occasion—a contrariety of opinion happening to arise among the leading engineers as to the feasibility of the scheme. This difference of opinion, instead of proving, as it ought to have done, a stimulus to a correct adjustment, was considered a sufficient excuse for allowing the whole affair to remain in abeyance. No sooner, however, was the Marquis of Hastings in India, than his master-mind taught him early to regard the vast utility of the undertaking; and all obstacles and minor difficulties were treated by him as they deserved.

The restoration of the Delhi canal which traverses the country from Rair to Delhi, where it again falls into the Jumna, was the one which first attracted his attention, although it was not till the year 1817 that an officer was duly appointed to superintend the work. The estimate was framed on the report of 1810, although it was found necessary in the progress of the work to depart considerably from it, in consequence of the changes

effected by the river Jumna during the interval. The work was carried on with great vigour, and in the face of numerous difficulties; and the water being partially brought down, as it progressed, irrigation from it was commenced in 1819. By the end of May 1820 the water was once more conveyed to the city of Delhi, which it now enters, as formerly, by an open channel, traversing, by an extensive aqueduct, the Emperor's palace, throughout the whole of which it ramifies, in opened or covered water-courses, having outlets to the Jumna, and thus permitting the passage of constant streams of fresh water.

In the space between the hills contiguous to Delhi and the palace, numerous underground channels lead off to the various residences of the nobles, and the divisions of the city; affording to the whole community that inestimable blessing, a bountiful supply of wholesome and good water. Open well-shafts are connected with these underground water-courses, so as to admit of their being cleared out.

The line of canal in one part of its progress has been unfortunately drawn too close to the

Jumna, and it has become necessary to take measures against the encroachments of that river, which in 1832 increased to a formidable extent.

The present bed of the canal is *above* the low-water, or dry season level of the Jumna.

The original and sole purpose of the government, when they undertook the restoration of these canals, consisted in the irrigation of the lands; but since the completion of the Delhi branch, mills have been erected in and about that city. The produce of these flour-mills in Delhi fluctuate considerably; but the average range may now be taken from £2500 to £3000 per annum. Similar mills are erected at Kurnaul, the income from which averages about £1000 per annum. At Hansi also there are mills, at Saharunpore and Shamli, and many others are contemplated.

Besides these flour-mills, saw-mills are erected at Delhi and Kurnaul; models of oil and sugar-cane mills have also been prepared, which promise not only to be successful, but likely to afford a handsome profit. The sugar-cane mills at present in use throughout this province are of the rudest description, and totally unfit for effectually

expressing the juice of the cane. As the luxuriant districts along the lines of the Delhi and Doab canals now produce a considerable quantity of cane, the establishment of mills such as these will be of essential service.

The mills are established at places in which surplus water escapes, or where it is returned below the mills into the canal again, so that no loss is occasioned beyond that of absorption and of evaporation. It must be apparent to every one, therefore, that these modes of employing the water are highly advantageous, and do not in the slightest degree interfere with the original purpose for which these canals were designed.

The requisite surveys, designs, and estimates for the restoration of the canal of Feroz Shah, which, with its branches, measures 240 miles in length, were not completed till the middle of the year 1822, when Major Colvin, from whom my information regarding these canals has been principally derived *, was honoured by being appointed to carry his own plans into effect. The work com-

* See his report, published in the Journal of the Asiatic Society of Bengal, 1834.

menced in March 1823. The excavation of the channel, and a few necessary works of masonry for regulating the water being finished, the water was turned down the canal in May 1825. However precipitate this measure may be deemed by some, the access to a plentiful supply of water was felt to be such a boon both to man and beast, that not a moment was to be lost in affording it; and the canal relatively to the Delhi one being so small, the extra expense of working under water was considered of much less moment than the benefits which a supply of water to this naturally rich soil would be certain to ensure.

Since that period the completion of original works, as well as the extension of the advantages of the canal, have been progressive. The canal of Feroz Shah and the canal of Delhi, as I have before mentioned, have one common head at Rair, on the Jumna, just after it has descended the Himalaya, and debouched on the plains of Hindústan. The original works consisted in the clearance of the old line of canal from Rair to Chamini, with the formation of bridges. The extensions are of the main line to Bahaderah;

of an additional branch into our newly settled frontier towards Darbah; and of the Rhotuck branch to Rhotak, with all the works necessary thereon: these works, like those of the Delhi canal, are now completed.

In 1822 the Marquis of Hastings ordered a survey to be made for the restoration of the canal of the Doab, lying to the east of the Jumna: main branch, 135 miles long; side branches, twenty-five miles. The preliminaries were completed in May 1823, and the work was entered on the following year. A great portion of the original work of all descriptions was completed before the water was turned in. In 1830 it was opened. Many unforeseen difficulties have occurred since the opening of this canal: the soil has proved, in places, exceedingly loose, so as to be easily acted on by the numerous mountain torrents which cross the course of the canal. These two causes have destroyed the due level of the canal, and called for a system of lockage. Three mountain torrents cross this canal, besides smaller ones, and when the rains are heavy their power is such as to defy all calculation; their effects in times of flood,

without being witnessed, must almost appear incredible; and in their progress they are so capricious that it is nearly impossible to anticipate their action.

These three great torrents have each been provided with extensive masonry dams, which are laid open during the season of flood, but capable of being shut up to supply water when required at the dry season; besides which, the Maskarrah, the most dangerous one of the three, has three extensive openings leading into the Hindan river. These masonry dams are exceedingly ingenious, and reflect the highest credit on their projectors. They have been found to answer the purpose for which they were designed most effectually. The total first outlay for the restoration of these canals is computed at fifteen lacs—£150,000.

On their completion, the people were told "that the object of government in obtaining a rent through the canals, was not so much to form a productive source of revenue from the actual price paid for the water, as to give them an efficient control over its expenditure, by making it of value sufficient to prevent its being wasted wantonly, and, that they looked alone to the general improvement

of the country as the source from which they should derive the return adequate to the outlay."

How far these wise views have been realized is best shown by the fact, that on the line of the canal of Feroz Shah, the system has led to an entirely new mode of life; instead of continuing an inactive pastoral people, wholly dependent on the periodical rains for raising their crops to maturity, the inhabitants having plenty of cattle, and good water for their fields, now turn the whole of their time to useful and profitable employment. The rents of many of the canal villages have been raised, while others that were reckoned highly assessed have been enabled to pay their revenue. Tracts of barren waste and jungle have been replaced by extensive sheets of cultivation and fields of fresh and profitable verdure.

The excavation of the soil in forming the line of the Doab canal, has led to the discovery of the site of a subterranean Hindú town. It is situated near the modern town of Behut, north of Seharunpore, and in that part of the canal south of the Belka falls. The bed of the canal at this place is twenty-three feet below the surface of the country,

which is undulating. The section of the excavation stands thus:—

	Feet
Sandy surface soil	4½
Seam of sand with traces of shingle, reddish clay mixed with sand	12½
Site of ancient town—black soil, full of pots, bones, coins, and other articles . . .	6

The attention of the work-people was first directed to the circumstance by their finding coins and bones amongst the shingle in the bed of the canal. The line of site is now distinct in section for a quarter of a mile, and would be discernible even further than this, were it not that the banks have broken down and covered it. The town-site stratum is very black, full of bones and pieces of pots of different descriptions. Bricks also, of a large size and unusual shape, as if made to suit the circular form of wells. Also pieces of the slag of iron from smelting furnaces, (an iron-furnace, in the present day, is a thing unheard of in this neighbourhood,) arrow-heads, rings, ornaments, and beads of different descriptions.

Lieutenant Cautley, of the Indian army, was the first person who brought this Oriental Hercula-

neum to the notice of the public; and having forwarded the coins and bones to Mr. James Prinsep, the result of the examination of a gentleman distinguished for his scientific and philosophical attainments, has been detailed in the following note:—

"The probable date of Lieutenant Cautley's subterranean city, to whatever cause its inhumation may be attributed, can be pretty well placed within cognate limits, through the very fortunate discovery of the coins embedded with the bricks and bones. The coins belong to three different species, already made known through Professor Wilson's paper.

"1. Indo-Scythic coin; or that having the figure of a man in a coat of mail, offering something on a small altar, which has been referred, with much probability, to the commencement of the Christian era—of this only one coin is recognizable, out of twenty-six.

"2. The chief part of the coins belong to the series No. 69, of Professor Wilson's paper, of which nothing at all is known. They have the elephant on one side, with one or more singular monograms. Some of them differ considerably in other

respects, having a Brahminy bull on the reverse, and an inscription of unknown characters round the edge.

"3. The third species of coin is silver. A square lump, with no regular impression, but simply stamped with various chhàps, as might have been the custom anterior to the general introduction of coined money. Of this ancient coin, the Mackenzie collection furnishes abundant examples; but the Colonel's researches altogether failed in ascertaining their date, or even their genuineness, both which points are now satisfactorily developed by the present discovery. They must all date posterior to the Indo-Scythic dynasties in Bactria, and belong to a period when (as in China at present) silver was in general current by weight, while the inferior metals (for all of the present coins are not of copper) were circulated as tokens of fixed nominal value.

"This discovery alone would be of great value, but it is one only of innumerable points for which we may expect elucidation from this Herculaneum of the East.

"The appearance and state of the tooth and

bones sent down (to Calcutta) are also of high interest. They are not entirely deprived of their animal matter, though it is in a great measure replaced by carbonate of lime. The tooth is of the same size, and belongs to the same animal (the ox), as those of the Jumna fossils,* presented to the Bengal Asiatic Society by Captain Smyth, but the mineralization in the latter has been completed, whereas in these it remains imperfect."

The lines of the Delhi canals are, I conceive, admirably calculated for the cultivation of sugar-cane, tobacco, and some species of cotton. It is now well understood that for the complete elaboration of the mucous juice of a plant dependent on its saccharine, aromatic, or fruitful flavour, for its value, an atmosphere moderately dry, with a due proportion of solar light and heat, is infinitely superior to heat, moisture and shade. The latter is only calculated to accelerate the growth of such plants as require an exuberance of vegetation for their perfectibility.

* A description of these fossils will be found in the Appendix of this work.

In selecting sites, therefore, for the introduction of a new culture, it is not sufficient to rest the choice on the condition of the soil, temperature, and shade singly, but to attend to the three conjointly; and especially to the atmospheric pressure and evaporation. While the sugar-cane juice in the neighbourhood of Calcutta is weak and watery, the indigo plant thrives to perfection. And why? Because the former requires not only solar light with a moderately arid soil, but also a *dry* and heated atmosphere, to prevent the roots from being stimulated too rapidly, and so throwing more juice into the vessels of the plant than the leaves can properly exhale.

Attention to the comparative moisture and dryness of the atmosphere is of the most essential importance in the art and science of agriculture, and cannot be too attentively studied in connexion with the laws of vegetable physiology and the influence of solar light, heat and soil. When the subject shall become better understood, and scientific agriculturists and others shall have put us in possession of their hygrometrical observations, we

shall be able to pronounce, before a new culture is undertaken, whether it will be successful or not, and with safety transport into regions far apart, the productions of different countries.

To India, the subject is of incalculable importance; since she is mainly, if not solely, dependent on her agricultural produce for subsistence, and consequently in proportion as the best methods of cultivation are understood, will her staple commodities be brought to an equality with those of the countries with which she has now to compete. The art of agriculture in India is still in its infancy, and the laws of vegetable physiology remain totally overlooked.

By an improvement in her various cultures can she alone expect to recover from the exhaustion she is labouring under. In addition to a rich and diversified soil, she has a climate ranging from regions of perpetual snow to tracts scorched by continued heat.

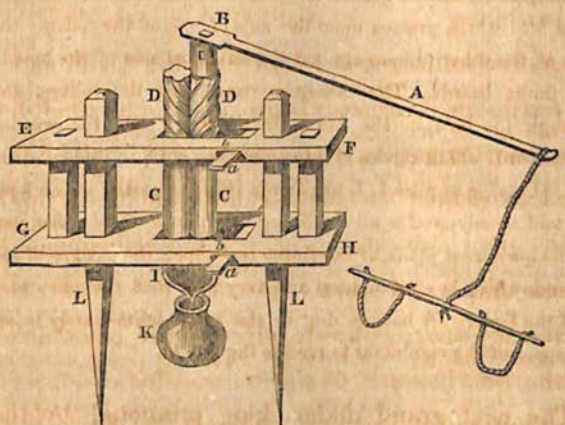
In conducting agricultural experiments in India it has hitherto unfortunately been the custom to regard the empire of Hindústan too much in the

light of a province, and to look upon the Himalayas as in the latitude of Calcutta, and Calcutta as in the latitude of the Himalayas. I have been credibly informed that the reply given by the government to the remonstrance which was made against the abolition of the Botanical Garden at Seharunpore in northern India, was to this effect, "that having an expensive Botanical Garden at Calcutta, they saw no necessity for keeping one up at Seharunpore."

As the soil along the course of the Delhi canals is fertile and various, while an ample supply of water for irrigation in the dry season is attainable, the extension of the sugar-cane plantations might with great advantage be commenced upon the banks of these streams.

If encouragement were given to the introduction of the Bourbon and Otaheite canes by a well-regulated system of premiums among the native cultivators in the different canal villages, and the cheap but efficient mill of the Ganjam province (a figure of which is here given) made to supersede the miserable pestle and mortar thing now in use, the

benefits would soon be fully apparent, and the time and expense repaid by an abundant return. All the meteorological and hygrometrical tables bearing on this interesting question, that I could procure, I have added in the Appendix, in order that the difference in the climate in the different parts of Hindústan may be effectually studied, and the enterprising European speculator be spared hours of anxiety and uncertainty.



DESCRIPTION OF GANJAM SUGAR-MILL.

The mill is worked by a single pair of oxen or buffaloes going round with the lever A, which is fixed on the top B of the right-hand roller. The two rollers C C have endless screw-heads, which are formed by four spiral grooves and four spiral ridges

D D, cut in opposite directions, which turn them into one another when the mill is working. These rollers and their heads are of one piece, and made of the toughest and hardest wood that can be got, and which will not impart any bad taste to the juice. They generally employ either the coloured part of the wood *Mimosa odoratissima* (dirchena carra of the Hindús)—it is of a chocolate colour, remarkably hard, tough and durable; or that of *Mimosa nilotica* (toomy carra of the natives)—it is also of a brownish colour, very tough and very durable, though less hard than the former. They are supported in the thick strong wooden frame E F G H, and their distance from each other is regulated by means of the wedges *a a*, which pass through mortises in the frame planks, and a groove made in a bit of some sort of hard wood *b b*, which presses upon the axis of one of the rollers: the axis of the other presses against the left-hand side of the hole in the frame boards. The cane-juice runs down the rollers, and through the hole in the lower frame board into the wooden conductor I, which carries it into an earthen pot K. The two long pointed stakes or piles L L are driven into the earth, which keep the mill steady, and is all the fixing it requires. The under part of the lowermost plank of the frame rests upon the surface of the ground, which is chosen level and very firm that the piles may hold the faster. A hole is dug in the earth immediately below the spout of the conductor to receive the pot K.

The next grand undertaking promoted by the Marquis of Hastings was the formation of a high road from the commercial town of Mirzapore, on the Ganges, through the Rewah country to Jubbulpore on the Nerbudda, with cross-roads throughout the Saugor and Nerbudda districts.

Good roads are to all countries of the first importance. By means of these, agricultural produce is readily transmitted from one part to another, and the commercial prosperity of a state promoted, while the wants and sufferings of the poor in times of distress are relieved.

Generally speaking, in Hindústan the roads are merely the dried-up beds of water-courses, and the expense of transporting goods to a distant market trebles the cost of the article.

During many months in the year wheel carriages cannot pass over them, and whenever a merchant desires to transport property from one town to another, he must employ camels or bullocks, or buffaloes.

In seasons of scarcity a class of people, called Bringarees, traverse the country with bullocks laden with sacks of corn, to supply those who stand in need of it; but as one bullock carries only two sacks, and the distance frequently being great, those alone who possess wealth can afford to purchase it—the mass of the people are without the means to buy, and consequently starve.

The harrowing scenes of distress which a

failure in the crops occasions can only be understood by those who have had the misfortune to witness them, and the value of good and efficient roads correctly estimated when this misfortune occurs.

I have seen hundreds of famishing poor traversing the jungles of Bundlekund searching for wild berries to satisfy the cravings of hunger. Many worn down by exhaustion or disease die by the road side, while mothers, to preserve their offspring from starvation, sell or give their children to any rich man they can meet.*

Painful as is the recital of these scenes, there is one which still remains to be told. Urged by the cravings of nature, the poor wretches have been known to compete with the birds for the half-digested grains of corn found amid the soil of the road!

It was to afford, in seasons such as this, an easy

* Only so late as the month of January, 1834, a helpless creature of this kind at Saugor in Central India, brought me her female child, about six years old, and begged me to take her for seven rupees (14 shillings). "She was resigned to her own fate," she said, "but she could not bear that her child should also starve."

access to food, and to promote the commercial prosperity of the country, that the noble Marquis undertook to make roads through Central India. By means of the Great Mirzapore road, as it is usually styled in Hindústan, the produce of the fertile districts of the Nerbudda valley and the Deccan can be conveyed on wheel carriages to Mirzapore at any season of the year, which no other road in Hindústan will admit of. The distance between Mirzapore and Jubbulpore is about 200 miles. Many difficulties were encountered in the construction of this thoroughfare; the Khutrah pass over the sandstone hills of the Vindya Range in particular, being a work of great labour.

At the period in which this undertaking was commenced, cross-roads throughout the Saugor and Nerbudda territories were projected and begun,—roads that would do credit to any country. These roads were intended to communicate with the great trunk, and be so many feeding branches, if I may be allowed the expression, to the grand thoroughfare. There was one completed from the town of Nursingpore, in the valley of the Ner-

budda, to Jubbulpore; another, two-thirds completed, between the large town of Saugor and Jubbulpore, and one projected between Mirzapore and Saugor direct, passing through the town of Huttah.

Over the Beos river, which crosses the second of these two roads, about ten miles from the city of Saugor, an iron suspension bridge has been thrown, which I shall notice more fully hereafter.

In the formation of these roads, the items of expenditure for bridges became very considerable. At first, when the engineers entered on their work, they considered it necessary to erect stone bridges over the water-courses which crossed the line: they were small but very numerous. During the hot and cold seasons of the year these erections were useless; but the country being hilly, the streams during the season of the rains rushed down from the mountains with an impetuosity which required most substantial masonry materials to withstand their force. At such times, few think of travelling, and the Indian roads are nearly deserted.

As a substitute, therefore, for these expensive

pieces of masonry, a plan was subsequently adopted which was found to be far more economical, but equally serviceable. It was this,—the banks of the stream were gradually pared off, so as to form with the bed of the water-course a superficial concavity. Commencing at a moderate distance from the water on either side, the whole surface was paved with heavy wedge-shaped stones. When the work is well done, the torrent, however impetuous, flows over the pavement or *salamee* without breaking up the stones, and over these wheel carriages heavily laden pass with facility. Moreover, there is one disadvantage or danger connected with bridges in India, which is not felt in any other part of the world, and that is, that elephants can never be taken over them without the greatest risk. These animals are so enormously bulky, that the bridge is often found to be too weak to bear their ponderous weight, and gives way under them. So sagacious are these creatures, that they frequently refuse to pass over covered water-courses, and insist on going to some neighbouring ford to cross. With the *salamees*, however, no such difficulty exists. They admit of

the greatest burthens passing and repassing without the possibility of risk or hazard, and are admirably adapted for countries intersected by rivulets and mountain streams.

On the Mirzapore road there is still a superintendent, who, with the convicts placed at his disposal, manages to keep the whole line in good repair at a small annual cost, but the Saugor roads are abandoned. Lord Amherst followed up the work of his predecessor for some time after his arrival in India, but before the Saugor and Jubbulpore road could be finished or the Huttah one commenced, orders were issued to stay the works in progress in these territories, and to dismiss the establishments attached to them.

Works of public utility of such vast importance to the country have never been resumed, and those which were completed, are, from years of neglect, falling fast into decay; while such as were in progress of completion have become destroyed, and are now worse than any parish road in England in the times of our forefathers.

By a well-regulated system of free and convict

labour, these roads could be completed and kept in an efficient state without incurring any extraordinary expense; but unless something be done, and that speedily, to repair and restore them, the sums which have been already expended will be entirely lost.

The only road of importance which remains to be described is the great trunk road now forming from Calcutta to Benares. In a former chapter of this work, I mentioned that at the outset of our career in India, the road to the interior led along the banks of the Ganges. Subsequently a new line was projected to Benares, leaving the river many miles to the right. By some unaccountable mistake, this road, which ought to have been cut in the most direct course, was made so tortuous, that an unnecessary expenditure, to a considerable amount, was entailed in its formation, as well as a loss of time incurred in getting over it.

During the administration of Lord William Bentinck, a survey of an entirely new line was made, approved, and entered on. No village or conflicting interest was allowed to interfere, but

the road levelled in the straightest possible course to Benares. By means of it, a saving in distance is effected of about ninety miles.

The work is in a very forward state. Valleys have been filled up, hills cut through, and the route throughout kept as level as possible. As many as 3000 convicts have been daily employed on this valuable work for the last two years. Now that the road has been thus much completed, great doubts are expressed whether the government will effectually perfect it by having it well *mettled* after it has settled down. Unless this should be done, and done effectually, as well as repairs annually entered on at the termination of the periodical rains, the soil will soon be washed away, the road cut up, and speedily rendered in many places impassable.

These are the whole of the important works of public utility (I wish I could have doubled them) which the Anglo-Indian Government have ever projected throughout their vast possessions in Hindústan; and I now pass on to place in juxtaposition with them the works of our different neighbours, independent as well as dependent.

Fully alive to the importance and value of local works of public utility, Lord William Bentinck desired to see to what extent the native princes and others had contributed to this useful purpose, and therefore requested his local representatives to furnish him with the wished-for information. The following is the report on those works of public utility which his lordship in council issued on the occasion of receiving them.

WORKS OF PUBLIC UTILITY.

"It is satisfactory to observe, that of the works reported, although there are few on a very extensive scale, yet that there are many of importance, and that, from their number, they form a considerable addition to the operations of general improvement which have been instituted and are advancing throughout our territories. The following is a summary of the principal works referred to:

"1st. Four iron suspension bridges.

"2nd. Eighty-six bridges of masonry.

"3rd. Seventy different roads, some of considerable extent, as twenty-four or twenty-eight miles.

"4th. Four hundred and twelve tanks.

"5th. One hundred and thirteen wells.

"6th. One hundred and seven ghâts.

"7th. Fifteen seraees for the accommodation of travellers, besides plantations and avenues of trees by the way side, along the various public roads, and other minor works, contributing to the comfort of the traveller, and the convenience of the public.

"To those estimable individuals who have thus taken the lead in, and to those who have contributed towards, an object no less honourable to themselves than beneficial to their country, the thanks of government are eminently due."

(Here follow the names of these gentlemen.)

"It is hoped that they will persevere in a course which must be gratifying to them, as it is demonstrative of an enlightened understanding, which places them in advance of the age in which they live. His lordship trusts that their valuable example will be cordially followed, to an extent which shall enable the government to direct the public labour and resources to specific objects of great and general importance; *being fully assured that*

few measures would tend more to the general welfare of this interesting country than such an union of public effort with private munificence."

These are sentiments worthy of any statesman; but, perceiving their value and importance, the neglect of such objects is less excusable in a government who, under the withering plea of expediency, sacrifice the true interests of the people, than in one who had never advanced or urged their propriety. The word expediency is everlastingly in the mouths of the Anglo-Indian Government. "It is not expedient," writes one secretary; while another cries out, "The expediency of the measure is doubtful;" thus twisting the word into every variety of form and expression. Expediency in every case is a dangerous plea. The sooner it is abandoned the better. It has justly been styled the grave of public principle, and the ignominious executioner of the fame of public men.

APPENDIX.

APPENDIX.

No. 1.

IMPORTANT MEASURES OF GOVERNMENT—NEW MEDICAL COLLEGE—STATE OF THE PUBLIC MIND.

In reference to the Scientific Institutions of Calcutta, changes have of late been introduced which must eventually exert a prodigious influence on the political condition of the British empire in the East. I mean the resolution to which the Anglo-Indian Government came last year, to make the English language the vernacular tongue of instruction throughout Hindústan. Already considerable progress has been made in the attainment of this object. Runjeet Singh, the powerful ruler of the Punjaub, seems well disposed towards it, and there is now a fair prospect of the establishment of a flourishing school at Lahore, the capital of his dominions. At Kotah, in Rajpootanah, a school is established, over which a Mr. Johnson presides, and at which, among other pupils, four near relatives of the Raj Ranee are being educated. At Katmandhoo, the seat of the Nipalese government, the Minister's adopted son, Colonel Sheer Jang, has been studying English for some years under an English tutor, and now speaks that language. Moreover, the same teacher has a small band of scholars, all sons of the chiefs of Nipâl. General Martaban Singh, the intelligent minister who has for so long a time guided the helm of affairs in that powerful kingdom, has also sent for an able native teacher, conversant with the

English language. Colonel Sheer Jang has the additional advantage of receiving instruction from Mr. Hodgson, the British Resident at the court of Nipâl.

The infant Rajah of Manipúr is also supplied with a native teacher to instruct him in English, the Supreme Government of India defraying half the expense of this arrangement. In addition to these, the Committee of Public Instruction are about to establish schools for the instruction of the natives in English, at Patna, Dacca, Hazeeribagh, Gohawati, and other places.

Following up these changes, the government of Calcutta have issued an important order, abolishing the medical class of the Sanscrit College, the medical class of the Mahomedan College, and the Medical Institution for preparing young natives for the army, and in their places have established "A NEW MEDICAL COLLEGE," for the instruction of native youths of all classes, in the different branches of medical science.

At this college the students are to be taught through the medium of the English language, and the establishment is put on such a footing as to admit of an unlimited number of students. Hitherto it has been found impossible to impart scientific knowledge efficiently, owing to the greater number of the modern terms in the sciences having no symbols in the dead languages of the East. The native colleges, therefore, in consequence of this impediment, have made little or no progress during many centuries. This important innovation will enable the professors, not only to instruct the students of medicine in the most efficient manner, but also to keep pace with the improvements which are daily taking place.

The following resolutions, published on the 28th day of January, 1835, by the Right Honourable the Governor-General in Council, are so full of interest that no excuse need be given for inserting those paragraphs which are immediately connected with the ubject.

1. That the Sanscrit College medical class, the medical class of the Madrusa (Mahomedan), and

the native Medical Institution, be abolished from the 1st prox.

2. * * * * * *

3. That a new college shall be formed for the instruction of a certain number of native youths in the various branches of medical science.

4. That this college shall be under the control of the Education Committee.

5. That the Education Committee shall have the assistance of the following medical officers *ex officio*,— the surgeon of the General Hospital, the surgeon of the Native Hospital, the garrison surgeon of Fort William, the superintendent of the Eye Infirmary, and the apothecary of the Honourable Company.

6. That *instruction be given through the medium of the English language.*

7. That a certain number of native youths, whose ages shall not exceed twenty, shall be entered on the foundation, as foundation pupils of the institution.

8. That all candidates for admission as foundation pupils shall be required to present respectability of connexion and conduct; and shall be able to read and write English and Bengallee, or English and Hindústanee: and with these qualifications all natives between the ages of fourteen and twenty shall be equally eligible, *without exception to creed or caste.*

9. That the candidates shall be examined by the Education Committee, and superintendent of the institution, and that the selection of the pupils shall be determined by the extent of their acquirements.

10. That the number of *foundation-pupils* shall be limited to 50.

11. That the foundation-pupils shall each receive a monthly stipend from the government of seven rupees, which may be increased according to the following rules.

12. That all the foundation-pupils be divided into three classes, each class having a different salary: the first class seven rupees (14 shillings) per month, the second class (18) nine rupees per month, the third class twelve rupees per month.

13. That the formation of these classes shall be intrusted to the management of the Education Committee, and the superintendent of the institution, it being distinctly understood that the classification will depend upon the acquirements of the pupils, and not upon the period of their studies; excepting, that no pupil shall, during the period of the first two years of being on the foundation, receive a higher salary than seven rupees a month, but that afterwards the increase will depend upon the classification.

14. That the foundation-pupils shall be expected to remain at the institution for a period of not less than four years, and not exceeding six years.

15. That all foundation-pupils be expected to learn the principles and practice of the medical sciences in strict accordance with the mode adopted in Europe.

16. That all the pupils who shall have completed their studies according to the form prescribed, shall be entitled to have certificates signed by the superintendent, to enable them to present themselves for final examination.

17. That *the final examinations for granting certificates of qualification to practise surgery and medicine*, or *for admission into the Service, shall be publicly made* by the Committee of Education, assisted by the medical officers above mentioned.

18. That such pupils as shall be deemed qualified to practise surgery and medicine shall receive certificates of qualification, signed by the president of the Committee of Education, and countersigned by the secretary of that committee, and the superintendent of the institution.

19. That the public service shall be supplied with native doctors from the institution. * * *

20. That, as an inducement for pupils of a respectable class to enter the institution, the pay of the native doctors, who shall have been educated at the college, and have received their certificates of qualification, shall be thirty rupees per month. After seven years' service, their pay shall be forty rupees a month; and after fourteen years, fifty rupees a month. After

twenty years' service, they shall be entitled to retire on a pension, regulated according to the proportions granted to native commissioned officers of the army, if no longer capable of performing duty from age, disease, or wounds.

21. That the Education Committee shall be charged with providing a suitable building for the college, a library, anatomical preparations, with all other objects indispensably necessary to the education of the pupils; the expense being previously submitted for the sanction of the Council of India.

22. That the college shall be under the management of an European superintendent, who shall devote the whole of his time to the interests of the institution; and who shall not be permitted to enter into private practice, or to hold any situation that can in any way withdraw his attention from his duties at the institution.

23. Fixes the salary of the professor at 2000*l.* per annum.

24. That the superintendent shall be aided in his duties by an European assistant.

25. That the European assistant shall devote the whole of his time to his duties at the institution; and that he shall not be permitted to enter into private practice, or to hold any situation that can withdraw his attention from the interests of the institution.

26. Fixes the salary of the assistant professor at 800*l.* per annum.

27. That the whole management of the institution, the charge of the pupils, the mode of teaching, and all the arrangements, shall be intrusted to the judgment and guidance of the superintendent, under the control of the Education Committee.

28. That the superintendent shall make half-yearly reports upon the state of the institution to the Education Committee, by whom these reports shall be forwarded, with their sentiments, to the government of India.

29. * * * *

30. That the superintendent, with the aid of his

assistant, shall be expected to instruct the pupils in anatomy, surgery, medicine, chemistry, and pharmacy, and to qualify them for medical charges, either civil or military.

31. That the pupils visit to witness the practice of the General Hospital, the Native Hospital, the Honourable Company's Dispensary, the Dispensaries for the Poor, and the Eye Infirmary.

32. * * * *

33. That the formation of a plan of medical education, and the rules and discipline of the institution, shall be intrusted to the Education Committee.

34. "*That in addition to the pupils on the foundation, the benefits of this college shall be open to all classes of native youths, between the ages of fourteen and twenty, without exception to creed or caste, provided they possess respectable connexions and conduct, and can read and write English and Bengallee, or English and Hindústanee; and that all thus qualified, at the discretion of the Committee of Education, be permitted to attend the instruction of the college, subject to its discipline and regulations.*"

Mr. Bramley, an Assistant-Surgeon on the Bengal Medical Establishment, had the honour of being selected by Lord William Bentinck as the first Professor.

Dr. Goodeve, also Assistant-Surgeon, is appointed Assistant-Professor; and Dr. O'Shaunessey is the Professor of Chemistry.

This college has been opened under the happiest auspices. And a most encouraging proof of its rising popularity among the respectable native community, is afforded by the accompanying highly gratifying communication. It was written in English by a Hindú gentleman of Calcutta, and sent to the Professor; and I am happy in an opportunity of recording so munificent an act.

"My Dear Bramley,

"I am unwilling to offer you my congratulations upon the success which has attended your undertaking

in the Medical College, without showing that my feelings towards the institution are more substantial than those which words only can express.

" Should all your expectations be realized, and there is every reason to believe they will, the Medical College cannot fail to produce the happiest result amongst my countrymen. No man, I assure you, is more sensible than I am of the benefits which such an institution is calculated to dispense; but I know also, that you have many very great difficulties before you, and the greater part of them you will have to contend with at the onset. My own experience enables me to tell you that no inducement to native exertion is so strong as that of pecuniary reward; and I am convinced that you will find difficulties disappear in proportion to the encouragement offered to the students in this particular. As an individual member of the native community, I feel it belongs to us to aid, as far as lies in our power, the promotion of your good cause. At present this can hardly be expected on any very great scale; but as example may be of service to you, I, for one, will not be backward to accept your invitation to my countrymen to support the college.

" I beg, therefore, as an inducement to the native pupils now studying in the Institution, and those who may hereafter enter, to offer the annual sum of rupees, 2000 (200*l.*), for the ensuing three years, to be distributed in the form of prizes. In order that these may be of substantial value to the candidates, I propose that the prizes should not exceed eight or ten in number, and that they should be available only to foundation students and natives, *bonâ fide* pupils of the college; all the other arrangements, in regard to this distribution, I leave to your discretion.

" Yours very sincerely,

(signed) " DWARKANAUTH TAGORE."

" Calcutta, 24th March, 1836."

It is impossible to reflect on the recent progress of events in India, without feeling a lively concern in all that regards the future. It has been said that the

great misfortune of the English always has been, that they consider that whatever has been found to work well among themselves, must necessarily work well in all other countries; and that to secure the happiness of all nations in alliance or subjection to them, it is quite sufficient to transplant into their soil the English institutions. More than one of our dependencies has been the victim of this well-meaning and natural, but most mistaken and ruinous policy. England being further advanced in social civilization is much better able to bear passionate appeals from democratic institutions than any of her possessions. The English apprenticeship to this work has lasted for eight centuries. That of her colonies has scarcely begun. To give them at once the institutions fitted for the last stage of free existence, instead of adopting the steady sway fitted for their infant civilization, is worse than an adherence to the grinding turpitude of despotism. The spark of popular excitation has at length been kindled in India; —to extinguish it is now impossible. Let the valuable page of history serve then as a lesson to assist the statesmen to whose care the direction of the destinies of this great empire is confided, that they may in safety regulate the progress of the native mind in the infancy of its emancipation.

If the political and civil officers of the Company before had an arduous duty to perform, their task will now be doubly embarrassing. Upon them, at all times, devolve the arduous duties of dispensing justice to millions of people of various languages, manners, usages, and religions; of administering a vast and complicated system of revenue, throughout districts equal in extent to some of the most considerable kingdoms in Europe, and of maintaining civil order in one of the most populous and litigious regions of the world; and now they will have to cope with the turbulence which the partial enjoyment and possession of power will, without great caution, be sure to engender.

No parent state, taking credit for its intellectuality, could for a moment desire to see its colonial subjects kept from the possession of knowledge, that their public

servants might the more easily avoid having their own incompetency and moderate talents detected by the people whose social and political life they have to regulate. This feeling has been nobly repudiated by the Marquis of Hastings, who, when Governor-General of India, as far back as the year 1817, declared his sentiments in the following energetic language:—"And ought the weal of a people once taken under our fostering care be left to any extraneous contingency? Our spirit of benevolence should be disinterested; and we should stand above the pride of considering their freedom from oppression as dependent solely upon the strength of our arm. How, it will be asked, is any other security to be given them? By communicating to them that which is the source of such security in us. By imparting that knowledge which furnishes us at once with consciousness of human rights, and the disposition and means to maintain them. This government never will be influenced by the erroneous, shall I not rather call it, the designing position, that to spread information among men is to render them less tractable, and less submissive, in proportion as they have the capacity of comprehending the meditated injustice. But it would be treason against British sentiment, to imagine that it ever could be the principle of the government to perpetuate ignorance, in order to ensure paltry and dishonest advantages over the blindness of the multitude."

It is not, therefore, a question of principle which is now to be discussed, but a question of detail. How the principle can be best carried out, with the least possible danger to the safety of the empire, is the question all should anxiously ask. Certainly not by launching the people from a state of abject exclusion into the possession of political power of the first order. This error has been forcibly pointed out by historical writers in all ages. Rather by a gradual introduction of mental improvement. Let the test for office, as for a profession, be intellectual capacity; for narrow uninformed minds never fail to be insolent in success. Before a native is raised to the important office of a judge-

ship (Suddeer Ameen), or deputy-collector, let him be tested by a competent tribunal in his knowledge of jurisprudence and literature; and if the scale of qualification be high, there will be little fear that every successful candidate will continue to exert his qualifications and attainments in the honourable course in which they have hitherto been directed. And why should this not be the case? Why should natives be appointed, as have been the practice of late, to situations of great trust and responsibility, involving, frequently, property to a large amount, who have been subjected to no test of competency excepting the report of a commissioner, or the interested exertions of personal regard? "The mode of intervention I have to recommend, with a view to the intellectual benefit of the Hindús," continues the noble Hastings, "is by improving and extending the existing system of tuition." Acting on this principle, he set about establishing schools throughout the country; his was not a flowery tirade made for the occasion, and there an end; but he entered into it, as he did all undertakings of the propriety of which he had become convinced, with that energy of purpose that vanquished every obstacle: and it is deserving of mention, that almost every institution now in existence, throughout the entire empire of Hindústan, for the improvement of the native mind, commenced during his lordship's administration.

In the resolutions just recorded regarding the new Medical College mention is made of the General Hospital and the Native Hospital, of which the students of the college are required to attend the practice. The former of these institutions is a nondescript pile, appropriated by the government for the reception of the sick of all nations. The government are reimbursed for the aid thus afforded by them to sailors and others, who have no legitimate claim, by the captain of the ship or other respectable person becoming security to that effect.

"The General Hospital," as it is styled, is as I before mentioned, a nondescript pile; and may be

looked upon, if I may venture to use the simile, as a vast colonial monument, showing the difference between the past and the present. The building, as it now stands, is made up of odds and ends. Originally it was one of those plain erections commonly met with in infant colonies, and fully adequate to the purpose for which it was destined. As traffic, however, flowed in, numbers increased, and in its train came vice and its concomitant evils, calling for a larger receptacle for their victims. Thus a piece now, and a piece then, have been added, till at last the building has assumed its present unsightly appearance. It has three of the Company's medical officers attached to it. The appointments are considered valuable, and much sought after as stepping-stones to the lucrative private practice of Calcutta.

No. 2.

MINERAL PRODUCTIONS OF BENGAL.

THE district of Tirhoot abounds in saline deposits. These consist principally of the carbonate of soda, sulphate of soda, and muriate of soda, besides saltpetre (nitrate of potash). In the hills of Behar, native sulphate of iron is found. Notwithstanding any quantity of these valuable salts may be obtained, strange to say, with the exception of saltpetre, they never appear to have been turned to account by Europeans. In the London market, at this present time, sulphate of soda is worth from 8*l*. to 10*l*. per ton. In some parts of Behar the impure salt is a quarter of an inch thick, and contains 58 per cent. of the pure salt. The natives turn it to use in the preparation of their hides for leather, and it in consequence forms an article of considerable commerce among them.

I must not omit to mention in connexion with these deposits, the prevalence throughout the fertile district of Tirhoot of that unsightly glandular disease of the

throat, known by the name of bronchocele or goître. Many and various are the causes assigned for it, but none appear so general or likely to be more correct than the one which attributes it to the saline impurities which are held in solution by the water of the Gundâk river*. Along its banks, neither man nor beast escapes, and those who are compelled by necessity to drink of this river look for the disease as a thing of course. A sample of the water from the river Gundâk taken from the stream opposite Singhea gave nearly two grains of the muriate of soda in sixteen fluid ounces, and an analysis of the contents of several wells by Mr. Stephenson, in the year 1834, in the southern part of the district, yielded in an English gallon,

Sulphate of Soda . . .	26.4 grains.
Muriate of Soda . . .	11.2 ,,
Nitrate and Carbonate of Lime .	12.8 ,,
	50.2 per gallon.

The province of Bengal may be pronounced rich in mineral productions. Considerable fields of coal have been discovered in the divisions of Burdwan and Bancoorah, with every probability that other valuable veins will be found. Indeed, in the vicinity of Rajmahal this has already been the case. Steamers now regularly ply on the Ganges, and afford a constant and steady demand for this mineral. In a period of two or three years, from a state of profound ignorance even of the existence of coal in India, which was destitute also of a single steam-vessel, there was in 1831 a consumption of 700,000 máns of coals from Burdwan alone, valuing, say 30,000*l.*, and in 1836 there were three steam-vessels regularly navigating the Ganges. What an extraordinary amount is the former, to be so rapidly added to the resources of a province solely from one mineral.

* Those who drink of this water are afflicted with wens in their necks, which continue to increase till they become as large as cocoa-nuts. Young people are the most severely afflicted with this disorder. Ayeen Akbary, vol. ii. p. 29.

At the commencement of the past year (1836) the Ranee Gunge colliery, situated in the division of Bancoorah, was paying to the government a ground-rent revenue of 200*l.* per annum. The colliery has fifteen pits capable of mining from 15,000 to 16,000 tons of coals, and the set extends over 500 acres of land.

No. 3.

ON MILITARY PUNISHMENT.

Military punishment is a subject which has of late excited considerable attention, and although not falling exactly within my province, yet I trust I may be excused, if I venture to trespass on the attention of the reader by a brief notice of its effects obtained from personal observation. Europeans who enlist into the Indian army consist of all grades. Decayed gentlemen and insolvent tradesmen, as I have before remarked, form no inconsiderable portion of the whole. Men whose minds have been already soured by disappointment,—who, instead of attributing their misfortunes, as they ought to have done, to their imprudence, are made tools of in the hands of factious demagogues, and at their suggestion attribute them to the tyranny of their superiors. These men, of all others, are the most impatient under the restraint of discipline. Another class consists of men, who, tempted by the indistinct and dazzling prospect of adventure held out to them, are led to abandon the quiet routine of a pastoral life, in order to engage in a military career. By the utmost assiduity and attention, men enlisting as private soldiers, can only reach the rank of serjeant-major or commissary, and that not before the best part of their lives has been passed in the barracks. Once in India they cannot quit the service without first indemnifying the India Company for their passage and providing a substitute. The latter is about equivalent to a prohibition, for in a country in which scarcely

a common European is to be found out of the service, a substitute is not to be obtained. The golden days of Indian warfare are now at an end. All those adventures so dear to a soldier's imagination are over. His time is now no longer divided between the ever-varying scene of an Indian camp, and the excitement of parade; one undivided continuance of listless indolence and monotonous drill, being all that he can reasonably contemplate. With the exception of two or three months in the year an exposure to the sun is so destructive, that all those out-of-door amusements, such as racket, foot-ball, cricket, &c., so useful in improving the physical condition of European soldiery, as well as in dispelling the tedium of idleness, are here inapplicable. Advantage is taken of the morning and evening to drill the troops, and for the entire day they are left to themselves. Want of employment leads them into crime. They slip out of the barracks between roll call, steal into the regimental or cantonment bazaar, pawn their appointments, get drunk, quarrel with the native shopkeepers, are found absent when their names are called over, and then of course are put under arrest. A regimental court-martial is assembled to try the offence. The court show all the discrimination and leniency they possibly can in trying their prisoners, which are compatible with a due regard to the interests of justice and the service. It would be preposterous to assume a contrary opinion, and to suppose for a moment, that any body of English gentlemen would willingly inflict punishment on men whose faces they are in the daily habit of seeing, and in the settlement of whose little domestic affairs they are in the constant habit of showing the most lively interest. Punishment, however, must be inflicted, and to determine the most appropriate, appears to be the difficulty. The recent progress of events has taught the cultivated mind to revolt at the degrading infliction of the lash. Divers other schemes of punishment have therefore been proposed in its stead. However lamentable the fact may be, it is no less true, as far as my observation has gone, that the ignorant and depraved mind of the dissolute soldier is insensible to

any impression short of the infliction of bodily pain, and in the truly vicious character that even fails to effect its object.

I recollect in particular, one incorrigible fellow called Haynes, who had served within fifteen months of the period he had enlisted for. While before the court taking his trial, he raised his eyes to heaven and solemnly vowed he would never do another day's duty with the regiment. Now to this man confinement was no chastisement. He received five hundred lashes, and as soon as I reported him fit for duty, he again got drunk and committed other acts of gross insubordination. He kept his word. He was never seen to shoulder his musket from the hour he registered his vow, and at the expiration of his time the regiment was but too happy in getting rid of such a scoundrel.

I almost fear that imprisonment frequently encourages the men to drunkenness, for no sooner is their period of confinement expired than they are off for a jollification, as they call it, with their comrades to the toddy shop.

Imprisonment and solitary confinement are generally substituted for corporal punishment. These measures fail in their desired object in two ways. First, to shirk duty and avoid drill, is what the dissolute soldier in India most desires, and if the regiment should be out on duty, imprisonment would act as a premium on vice, for the well-conducted man would not only have to perform his march but take his tour of duty besides, while the bad man would be entirely relieved from the latter. Again, every soldier in India knows that every endeavour to enforce solitary confinement has hitherto failed, and that to employ this term is productive of essential injury by bringing the sentence of the court into ridicule. The partition which divides the solitary cells of the Congee House is a thin one, and often when passing at night, I have heard the men who were confined within under sentence of solitary imprisonment carrying on a conversation through the walls by talking loud. Moreover, the sentries placed over the prison-house are sepoys, who are in the habit

of answering whatever questions are asked them by the prisoners in their broken Hindústanee. Any extra severity the sentence of solitary confinement might be supposed to convey, is consequently utterly destroyed.

Secondly, by the adoption of either of these methods of punishment the force of open example is lost—prevention of crime is better than the cure. If open example have a beneficial influence in deterring the virtuous from falling into vice, neither of these methods possess that advantage. The men in the barracks know that their comrade is in confinement, but then *they see* nothing of him and can know nothing but from report, or what they themselves have individually experienced.

Again, for the graver offences, transportation to a penal colony is not a punishment commensurate with the enormity of the offence committed. In the East as well as in the West Indies the services of every European soldier are required, and to sentence him to transportation from either of these countries to Australia is to pass him from a deadly climate to a salubrious one; and at the same time to lose his services, perhaps at a period in which he is most required and cannot be replaced by another. Moreover, it is a change which would prove a relief rather than a punishment to the man, for by means of it he gets rid of the weight of many years of unexpired time, and passes it in the temperate climate of New South Wales.

No. 4.

ARTESIAN WELLS IN CALCUTTA.

From time to time attempts have been made in Calcutta to search for a spring of pure water by boring. The principal ones on record are those conducted by Colonel Garstin from 1805 to 1820; and Dr. Strong, with Messrs. Kidd and Ross, in 1829 to 1836. Different spots about the city have been selected, but the

greatest depth yet attained is in Fort William, where it has reached 176 feet. A shift in the shaft occurred, and the experiment, like all others, failed. The stratum at this point consisted of quartzose gravel, with angular fragments of quartz and felspar, larger than peas, mixed up with it. By some it is supposed the augur went through the Delta of the Ganges, and reached the solid rock, as the instrument could make no further progress. Accounts from Calcutta, as late as March, 1836, state that the Boring Committee had commenced their labours anew. The rods have been carried to the depth of 120 feet, with a bore of nine inches; the water rising in the tubes to within 14 feet 6 inches of the surface of the earth. The level of the water in adjoining wells being within ten feet of the surface. No impediment of any kind had as yet occurred, and the work was daily progressing. The geological information obtained by these experiments of the composition of the Gangetic Delta is curious. At twenty-eight feet from the surface, bones were discovered; at fifty feet, a thick peat stratum; the intermediate spaces being made up of clay and sand, which extend, in different degrees, down to 170 feet, the site of the impenetrable rock above alluded to. It appears from this circumstance, therefore, that the value of the discovery of a wholesome spring of water is duly estimated, if we judge from the perseverance of the enterprising experimentalists who are engaged on the work. All agree in stating that it ought on no consideration to be abandoned till the boring-augur has reached a depth of 500 feet. The establishment of Artesian wells in such a place as Calcutta, where the surface water is exceedingly brackish, would be of essential service, while to the garrison of Fort William such a discovery would be invaluable.

No. 5.

ON THE TOPOGRAPHY AND CAPABILITIES OF CHOTA NAGPORE, RAMGHUR, &c.

THE reader will perhaps recollect that the wild districts alluded to in the con amore sketch of my military friend, are those which furnished me with the zoological materials given in the body of the work; and to render the whole as complete as practicable, I shall append a very valuable topographical outline, which I have been so fortunate as to obtain*.

It should be recollected that nearly the whole of these districts are still marked in Arrowsmith's Map as "unexplored." Part of Ramghur and Chota Nagpore may be considered table-land. The valley of Sumbhulpore, according to Dr. Voysey, is only about 410 feet above the level of the sea. The hills on the table-land are contiguous for many miles, ranging 2000 feet above their base, or 6000 feet above the level of the sea. The surface of the country undulates, is intersected by deep ravines, and is partially covered with thick jungle. The plains, in some part of these districts, extend uninterruptedly for many miles. Those of Chota Nagpore are for the most part cultivated with rice, different kinds of pulse, wheat, barley, cotton, a little sugar-cane, and esculent plants. Enclosures, as we find them in England, are seldom made by the natives: the fields are rarely fenced, but partitions are made in them by small ridges of earth, by means of which water is retained in them ad libitum. The soil of Ramghur, in the declivities, is principally loam; in the high ground it consists of a mixture of loam, clay, and gravel, with mica.

The soil of Chota Nagpore is in many parts a peculiar kind of red earth, which is extremely fertile. In this soil cotton thrives luxuriantly. The decli-

* They were drawn up by the late Mr. Breton, and inserted in the Transactions of the Medical and Physical Society of Calcutta.

vities consist of a very rich loam, and from the circumstance of the existence of innumerable springs, a few feet below the surface throughout the whole year, rice is abundantly produced with little labour to the husbandman. The soil of the district of Surgoojah is somewhat similar to that of Ramghur, and the produce is pretty nearly the same; but it has one peculiarity highly deserving notice, which is, that the valleys yield vast quantities of tikhoor (Curcuma angustifolia), from the roots of which the people prepare a farinaceous powder, which is not distinguishable from the West India arrow-root, and for which it is found to be an efficient substitute. In 1821 a specimen of this farinaceous powder was sent by Mr. Breton, the resident surgeon at Hazareebagh, to Dr. Wallich, superintendent of the Botanical Garden at Calcutta, who found it on examination so closely to resemble the West India arrow-root, that he begged he might be supplied with as large a quantity as could be procured, for transmission to various parts of Europe, which was done; and, I believe, as much as 40 máns (upwards of 28 cwt.) were supplied.

The soil of the valley of Sumbhulpore, through which the torrents of the Mahanuddee wind their course, is of an alluvial kind, and very fertile in rice, wheat, and sugar-cane. Sumbhulpore is particularized by its productions of the finest oriental diamonds in the world.

The range of Farenheit's thermometer * in the plains of Ramghur, Chota Nagpore, and Surgoojah may be said to be from 72° to 88° in the twenty-four hours during the rainy season; from 78° to 98° throughout the hot season; and from 66° to 32° in the cold season. In Surgoojah the thermometer in the month of January has stood as low as 28°. The nights in the cold season are accompanied, as in the Bengal province, with a heavy dew, and are damp and chilly. The most prevalent wind, from October to June, is

* I regret I have no barometrical or hygrometrical measurements.

the S.W.; but in the rainy season it prevails from the N.E.

The rivers of these Provinces are for the most part shallow, and are never full, except in the rainy season; at which period the streams are very rapid. The banks are covered with weeds and ephemeral vegetation of various kinds, which as the river rises are swept off and carried away in its waters. Rivers that contain in the rainy season ten, fifteen, or twenty feet of water, fall shortly after the termination of the rains to two or three feet, and in the hot season become altogether dry. Many villages, and a few towns, are built on the banks of the rivers; and many at a remote distance from them. The habitations of the people are of the simplest construction, being composed of bamboos, plain timbers, coarse mats, and a thin thatched roof. The walls of the huts are principally wattle and mud, being plastered inside and out with mud mixed with cow-dung. No order is observed in the building of these habitations, nor are streets regularly formed. Small spaces are left between the huts for the ingress and egress of their occupants, but no attention seems to be paid either to ventilation, draining, or cleanliness.

In the towns something like order is observed in building, and one main street will generally be found communicating with a number of narrow alleys. Many of the villages are near large tanks, or pools of stagnant water, choked with vegetation; and yet the people appear to enjoy as great an immunity from disease, as those on more open and dry situations. The inhabitants are chiefly agriculturists: many are occupied in trade of various kinds, and a few are engaged as soldiers. They are in general temperate, industrious, and tolerably cleanly in their persons. The Dhangees make excellent bearers, and numbers of them resort to Calcutta for hire. The principal diseases to which these people are liable, and from which Europeans are exempt, are the leprosy, elephantiasis, bronchocele or goître; the naukra or nose disease; and the ratundha or night blindness (nyctalophia).

The mountains of these districts are wholly covered with trees and coppice; and the extensive forests and jungle which surround them are made up of valuable and important plants. Between Singhoom and Sumbhulpore there is a forest of Saul trees, extending uninterruptedly for upwards of thirty miles; and from their extraordinary loftiness and magnitude, they may be esteemed the finest in Hindústan. In addition to these we find the

Toon—Cedrela toona, Roxb.
Seesoo—Dalbergia seesoo, R.
Neem—Melia azedirachta.
Seemul, or cotton-tree—Bombax heptaphyllum.
Rohun—Swietenia febrifuga.
Kheir—Mimosa catechu.
Babool and other varieties of mimosa.
Pilas—Butea frondosa.
Burr—Ficus indica.
Peepul—Ficus religiosa.
Goolar—Ficus glomerata, Roxb.
Tar-tree—Borassus flabelliformis.
Khejoor—Phœnix silvestris, Roxb.
Khoormu, cajure or date-tree—Phœnix dactylifera.
Umultas—Cassia fistula.
Sagoon, or teak-tree—Sagona grandis.
Caronda—Carissa carandis.
Champa—Michelia champaca.
Bel—Sida rhombifolia.
Bhillawum, or marking-nut—Semicarpus aracardium.
Kuchila—Strychnos nux vomica.
Tendook, or ebony-tree—Diospyros ebenum.
Mahwa—Bassia latifolia.

The *rhododendrons*, the *kheree* from which pill-boxes are made, the *dhamin* and bamboos are commonly found interspersed with the larger trees.

Of the mineral productions of this vast territory, I have said nothing, for at present we are in a state of great ignorance concerning them. There is every reason to believe that valuable mines and ores might be discovered, if experienced miners were employed to

search for them. It is confidently believed by the natives, that in Gangpore, on the confines of Sumbhulpore, there is a rich gold mine; for in the beds of the rivers which intersect that country, grains of gold are frequently found in considerable quantities. Iron abounds to an unlimited extent, and is very extensively worked. Sumbhulpore has been distinguished from time immemorial for the production of the finest Oriental diamonds in the world. Unfortunately these treasures lie concealed in tracts where man scarcely dare venture. None but the acclimated natives, whose appearance sufficiently marks the ravages of disease, can enter them with impunity, excepting in January and the three succeeding months; this forms the chief objection to the employment of skilful European mineralogists, whose researches, if they could be adequately persevered in, would in all probability be attended with very interesting and important results.

No. 6.

ON THE IMPURITIES CONTAINED IN THE GANGES WATER.

At Ghazepore, in the province of Benares, the Rev. Mr. Everest has made some interesting experiments on the Ganges water, which, in a geological point of view, are exceedingly valuable, and will serve to give the general reader some idea of the quantity of earthy materials hourly carried down by this immense stream.

VELOCITY OF THE STREAM IN FEET IN AN HOUR.

July 3rd	6.810
—— 7th	11.520
—— 23rd	21.000
August 8th	42.000
—— 22nd	34.560
September 6th	21.600
—— 24th	13.320
October 8th	10.800

or 20.200 for the average of the four months, which is equivalent to about four miles per hour.

DEPTH OF THE RIVER.

	Feet.	Inches.
June 22nd	19	6
—— 30th	22	6
July 7th	25	6
—— 14th	28	0
—— 23rd	30	0
August 1st	35	6
——— 8th	44	0
——— 13th	47	6
——— 22nd	42	0
——— 31st	36	0
September 6th	38	0
——— 15th	37	6
——— 24th	28	6
October 1st	26	6

or an average of 33 feet for the four months.

INSOLUBLE MATTER CONTAINED IN A GIVEN QUANTITY OF GANGES WATER.

	In a Wine Quart.	In a Cubic Foot.
July 3rd	1 grain.	30 grains.
—— 7th	8 ,,	240 ,,
—— 23rd	10 ,,	300 ,,
August 8th	58 10	1740 ,,
——— 13th	37 ,,	1110 ,,
——— 22nd	26 ,,	780 ,,
September 6th	17 ,,	510 ,,
——— 24th	8 ,,	240 ,,
October 8th	6 ,,	180 ,,

or, on an average, 19 grains of insoluble matter for every wine quart, during the four rainy months, that is, from the 15th June to 15th October, to which must be added for soluble matter, say two grains, making the whole equal to 21 grains, or about 630 grains of soluble and insoluble materials carried into the sea in every cubic foot of water of this magnificent river.

No. 7.

ON THE DIAMOND MINES OF INDIA.

A RIDE of forty miles in an easterly direction from Chatterpore brings the traveller to Punnah, the district so celebrated all over the world for its diamonds.

The diamond districts of India, at present known, are Punnah, Sumbhulpore, and Golconda; but when the labours of the mineralogist become extended to the mineral productions of this country, the diamond stratum will be found, I have little doubt, to be more extensive than is at present suspected. With respect to the mines of Bundlekund there is a tradition, that diamonds are only found twenty-four miles round Punnah, a fallacy, no doubt invented by the Punnah family to deter speculators from searching for them elsewhere. That they do exist in other parts of this province is satisfactorily proved by Major Pogson, who worked a small mine of them in the neighbourhood of the hill of Kallingur, and who asserts that they are frequently met with in the bed of the Bhagun-nuddee after the periodical flooding of this stream from the surrounding hills; and I have reason to believe that they are to be met with in the Saugur district in the sandstone breccia to the N.E. of the village of Putteereah.

The diamonds about the town of Punnah are discovered by digging pits from three to twelve feet deep in the red gravelly soil, which abounds there. There is not any thing peculiar in this soil, which is nothing more than a sandstone breccia. The fine soil, when extracted from the pits, is carefully washed away in small baskets; the coarse residue is then spread on the ground, which is previously made flat and even for the purpose, and, cautiously picked over by an experienced labourer.

When our troops first marched into Bundlekund,

many of the officers were tempted to try their fortune in diamond mining. Either the native workmen were too cunning for them, or they were unhappy in their selection of their ground, for only few covered their expenses, and many were considerably out of pocket. The mines in the immediate vicinity of Punnah are now abandoned as being worked out, the stratum of red soil there being very superficial; but if the sandstone rock beneath were cut through, it is more than probable that a second stratum of breccia might be discovered, affording a new and vast source of wealth to the speculator. Only twelve miles from Punnah, at the village Sukareeah, where the principal mines now are, the workmen have to cut through a stratum of rock of this kind before they can reach the diamond soil. This stratum, which is only from fifteen to twenty feet thick, in consequence of the tedious process pursued by the natives, takes them many months to penetrate. The superficial soft soil is first removed, the rock is then cut with chisels, broken with large hammers, and blasted. A fire at night is sometimes kindled on the spot, which renders the sandstone more friable. On this work being perfected, the gravel underneath is carefully scooped out, and search made in it for the diamonds. It is usually a work of much labour and delay, in consequence of the necessity of frequently emptying the water from the mines.

The different species of diamonds are termed by the natives of Punnah,—

First,—The *Mootee Chool*, which is clear and brilliant.

Second,—The *Manik*, of a greenish hue.

Third,—The *Punnah*, which is tinged with orange.

Fourth,—The *Bunsput*, which is blackish.

The province next in celebrity for its diamond mines is Sumbhulpore, which has been from time immemorial distinguished for its production of the finest Oriental diamonds in the known world. They are found in the Mahanuddee, which intersects the district, and at the mouths of some small rivers which terminate in it. The Mahanuddee in its course to the sea receives many tributary streams, but it is only in that part

which passes through the Sumbhulpore districts, and in tributary streams that open into it on its *left* bank in its course through that district, that diamonds are ever found. In the beds of the streams that empty themselves into the Mahanuddee on the right bank, these precious stones have never been discovered, nor have they ever been seen on the left bank above the confluence of the Maun at Chunderpore or below Soanpore. It would appear, therefore, that they are washed down from the banks of the streams which flow from north to south, through the mountainous and almost inaccessible tract which occupies in Arrowsmith's map the 83rd and 84th degrees of east longitude, and 21st and 22nd degrees of north latitude, marked unexplored. This inference is supported by the fact of their being not unfrequently met with in the beds of streams in Raighur, Jushpore, and Gungpore, though there is no reason for believing that any attempt has hitherto been made to discover the stratum whence they proceed.

Searchers, accompanied by their women and children, amounting to between 400 and 500 persons, are annually employed from the month of November till the commencement of the rainy season, in searching the bed of the Mahanuddee for diamonds. They examine such parts of the river as are obstructed by rocks, from Chunderpore to Soanpoor, a distance of about 120 miles, and all the hollows in the bed of the Mahanuddee in which alluvial matter is deposited. The process pursued by the searchers is extremely simple, and three implements only are used by them. The first is a kind of pickaxe with one pick, called *Ankooa;* the second, a plank of about five feet in length and two feet in width, made a little concave towards the centre, and a rim of three inches in height on each side, called *Doer;* and the third, a board of similar form, but only half the size of the former, called *Kootla.* With the pickaxe the earth is dug out of the hollows, and collected in heaps near the stream. Pieces of this earth are then placed by the women on the large board, which is so inclined as to allow the earth, when mixed with water, gradually to run off. The pebbles

and coarse gravel are then picked and thrown away, and the remaining mass is afterwards removed from the large to the small board and spread over the latter as at Punnah, to admit of every particle being minutely examined, gems and grains of gold, if any be present, being collected. The earth in which the diamond is usually found consists of a mixture of stiff reddish clay, pebbles, a small proportion of sand, and a little oxyde of iron. This earth the searchers take particular pains to find, and they examine every particle of it with the utmost attention.

In the reign of the former Rajahs and Ranees in Sumbhulpore, the right to all diamonds found in the bed of the Mahanuddee was invariably vested in the sovereign; and on a diamond of magnitude being found by the searchers, the fortunate person was rewarded by a part of a small village in rent-free tenure, and by presents in money and clothes. When detected in secreting a diamond, they were punished with death, or by being severely beaten, and deprived of their previous grants, with a strict prohibition of the privilege of ever again being permitted to search for diamonds. The searchers, however, do not implicitly obey this order, and many diamonds are disposed of surreptitiously. In 1818, on our government being established at Sumbhulpore, a diamond, which had been secreted by the searchers from the former rulers of the district, was actually brought and delivered to the political agent, and by him sent to Calcutta as a part of the property of Sumbhulpore, which by right of conquest became the property of the state. This stone weighed 84 grains, and was valued at 500*l.* sterling.

At Sumbhulpore the quality of the diamond is named after the four tribes of the Hindús. A diamond of the first water is called *Brahmin*, second *Chetree*, third *Bysh*, and fourth *Soudra*. The weights they employ for weighing the diamond are the *Ruttee* and *Masha*. The former is the weight used at Punnah. It is a fraction less than two grains troy weight, and seven Ruttees make a Masha.

In his description of the diamond mines in the range of mountains in Southern India, the late Dr. Voysey states, that the only rock in which the diamond is found, is the sandstone breccia.

This breccia, he says, is frequently seen in all the pits of these mountains, at various depths from the surface. In one instance, it was at a depth of fifty feet, the upper strata being sandstone, clay slate, and slaty limestone. The stratum of breccia is two feet in thickness, and immediately above it lies a stratum of pudding-stone, composed of quartz and limestone pebbles, cemented by calcareous clay and grains of sand. Diamonds are found in the bed of the Godavery, he moreover tells us, near Buddrachillum. The streams which flow into it near this place have their origin in a rock formation, exactly similar with those above described. And he throws out a surmise, which is in fact a true one, that the diamond mines of Punnah, Sumbhulpore, and even of Bejapore, are contiguous to rocks of a similar composition.

At all the places visited by Dr. Heynes in Southern India, he found that the mines were either in an alluvial soil or in rocks of the latest formation, and contained such a large porportion of rounded pebbles as to have rather the appearance of a conglomerate than any other species of stone. The diamonds are not scattered through the entire fabric of the soil to an indefinite depth, but confined to a single bed always *harder* than the stratum above or below it, and not exceeding a foot or two in thickness. At one place (Cuddapah) the uppermost or superficial stratum consists of sand or gravel mixed with a small proportion of loam. Its thickness scarcely exceeds a foot and a half. Immediately under it is a bed of stiff bluish or black mud, similar to that which we find in places that have been inundated. This mud deposit is about four feet thick and contains no stones. The diamond bed comes next, and is easily distinguishable from the incumbent bed, by the great number of large rounded stones which it contains. It varies from two to two and a half feet in thickness, and is composed of large round

stones, pebbles, and gravel connected together by clay. When Dr. Heynes saw it the preceding rains had rendered it quite wet, but in other seasons it is as dry as the bed which lies immediately above it. At another place (Banaganpilly) the diamond stratum is not more than a foot in thickness, but from fifteen to twenty feet below the surface. It is of the same nature as the rocks lying above and below it, but distinguishable from them by its *superior hardness*. The bed consists of conglomerate composed of rounded silicious pebbles, quartz, chalcedony, and jasper of different colours, from white to black. In the Ellore district, the diamond stratum is covered by thick strata of calcareous tufa.

I ought to mention that at Punnah torquoises are found as well as diamonds; and during my stay at Chatterpore, I recollect the native attendant, who used to accompany me in my elephant rides, showing me a very elegant one, which he assured me came from that place.

A decree issued by the Raja of Punnah appropriates to the state every diamond found in his territory above a certain weight, at a certain fixed price. The diamonds usually found at Punnah are like little coarse red pebbles, and the unexperienced eye would pass them by a dozen times unobserved. This is the best state in which they can be purchased, for the native lapidaries have not acquired the art of cutting them on the scientific principles which the European craftsmen have adopted, and consequently their intrinsic value is deteriorated by their unhandy work.

Many imagine that diamonds may be purchased on the mine at a very cheap rate, but this is a mistaken idea. Nearly all who work and search for diamonds at Punnah are employed by distant native merchants, who keep confidential agents, called *Duleils*, at Punnah to superintend the searchers, and who pay the regulated tax imposed by the Raja for all diamonds found in his territory. These agents, if they are faithful, which is generally the case, carefully secure the produce for their employers, so that a stranger arriving at

Punnah for the purpose of purchasing diamonds, finds, like the stranger who resorts to Oporto to purchase wines, that he has to put up with an inferior article, as the richest and best are secured for distant wealthy houses. Now and then, however, diamonds in their rough state may be met with in the neighbouring towns at a reasonable rate, and if a person should be a good judge of the purity of their water, a handsome profit may occasionally be realized by the resale of them. The apprenticeship, however, is generally a very costly one to an European, and therefore his subsequent dealings in these precious articles seldom or ever bring him an adequate return for his expensive initiations.

No. 8.

FISH OF THE JUMNA.—FREQUENCY OF ENTOZOOA IN THOSE OF THE RIVERS OF CENTRAL INDIA.—GEOLOGY OF THE BANKS OF THE JUMNA.

The Jumna abounds in a delicious fish called roué. It is about the size of a salmon; and in its external appearance is not unlike that fish. Among the smaller sort the grey mullet of this river takes the precedence. The roués at Chillatarah were the finest in flavour I ever tasted; and I can strongly recommend the place to all epicures, who desire to eat this fish in perfection. No one need scruple in avowing an object of this kind; for we have Quin's annual visit to Plymouth to enjoy John Dory, as a precedent.

The flavour of the fish of the Betwa, Kén, and in fact of all the mountain streams of Central India, will bear no comparison with those of the Jumna; and what is still more remarkable, scarcely a fish is to be caught in any of those mountain rivers that does not present a diseased appearance. In the *mahaseeah* or *mahsir* this is very common. When placed on the table to carve, I have invariably found minute hematoid worms lodged in different parts of the substance of the flesh. They

appear as if inclosed in cysts, which from the process of boiling assume a greyish black appearance. After a careful examination we find in the interior a loose, detached, shrivelled animalcule, or entozoon.

The *mahsir* is a leathern-mouthed fish. It has an awkward pike-like head and large scales: when out of the water for a short time the back is greenish, softening off to pinkish yellow on the belly; and from the fact of its having a pink tint when salted or a little stale, has been compared, like the roué, to the salmon.

These fish are not confined to the rivers of Central India; on the contrary, they abound in the rivers of the Deyrah Dhoon, at the foot of the Himalaya mountains, and have frequently been killed there 32lbs. in weight. I never recollect meeting with the appearance just described, in fish from any of the rivers appertaining to the Gangetic provinces.

GEOLOGY OF THE DOAB.

The free navigation of the Jumna is of such importance to our internal commerce, that for years past the government have been unceasing in their efforts to clear the bed of this stream of the numerous sandstone rocks which abound in it, and which, in conjunction with the extensive arinaceous limestone banks, form dangerous rapids and whirlpools, which have hitherto proved highly destructive to the large unmanageable cotton-boats that navigate the river. Captain Smith, of the Engineers, has been engaged for a long time in removing these formidable obstructions. To him we are indebted for much valuable geological information procured while prosecuting his labours.

To give the reader some idea of the field of research, it is necessary to state that the section of the earth laid open by the operation of this stream—to a depth, in some places, of 100 feet or more—is a section of the great alluvium of the Doab and Agra plains; and not, as it would be in the lower course of the Ganges, a

mere exhibition of the continually shifting channel and sands of the comparatively recent Delta. Mr. John Leslie, the indefatigable naturalist alluded to in a former part of this work, was one of the first persons who called the attention of the scientific public to the existence of fossil remains in the banks of this river. He despatched to the physical class of the Asiatic Society of Bengal, part of a long bone (femur) which he procured from the bed of the river, near Calpee, in 1828, and also a portion of a tusk of an elephant, the lamellated structure of which was very perfect. Dr. Duncan, the resident surgeon at Calpee, directed his attention to these fossil remains, and subsequently many varieties of fossil bones have been discovered. They have been principally allotted to the elephant tribe, some to the camel, *two to the human species*, and a few to horses.

The majestic banks of this river are formed of kankar or calcareo-arinaceous slates, which were supposed for a long time to be the result of a gradual deposition from water; but recent investigation has proved the negative of this. An analysis of the water, from the small springs found oozing from under many of the ledges of kankar, is found to be nearly pure; the specific gravity being identical with that of distilled water, and traces only of carbonate of lime to be detected. This goes to support the accuracy of the judgment displayed by the Chillatarah villagers, in their selection of the Jumna water for domestic uses, and to refute the notion that the great calcareous deposits in the different soils of Hindústan are derived from lime contained in the water.

Mr. James Prinsep, and others, are of opinion, that the fossils met with in the bed and on the cliffs of this river have shifted from their original locality. That at first they were deposited in the clay stratum from 100 to 150 feet below the plain of the Doab, and consequently under the general line of the kankar formation. That upon the excavation of the present bed of the Jumna many were washed out of their original position, and carried by the stream to fissures in the

ledges of the rocks in the bed of the river; and there remaining, have been gradually mixed up with the fresher muddy deposit, and in some instances impregnated with a tint therefrom: That they belong to the former period, and that the kankar attached to them is much more ancient than the present calcareous sands of the river, as some of the specimens have large angular quartz and felspar gravel cemented on to the bones. Angular pebbles of quartz are here and there discernible in the concretions of rolled kankar; and it is a curious fact, that the size and description of the granitic gravel adhering to the bones exactly resemble the character in those attached to the fossils which have been discovered at Jabalpúr, in the Nerbudda, by Captain Sleeman and Mr. Spilsbury; the nearest point of which is at least 300 miles from the Jumna. Of these I shall have occasion to speak hereafter.

With regard to the human bones, much doubt may fairly be entertained, on account both of the imperfect preservation of the fragments, and the rarity of their occurrence in a fossil state: indeed, it is well known to be a much contested point, whether the bones of man, as well as those of the monkey tribe, have ever been so discovered; although the careful examination of the human remains lately found in the caves of the South of France seem to have satisfied the minds of most of the French geologists on this point.

In a very long and masterly paper on these interesting discoveries in the bed of the Jumna, published in the December Number of the Asiatic Journal of Bengal for 1833, Mr. James Prinsep, the able editor, concludes by these remarks:—"We have dwelt at some length on this novel subject in hopes of drawing the attention of our Indian geologists more zealously to prosecute their investigation of the new field of organic remains now opened to their labours in the clay of the *Doab* and the banks of the *Jumna*. Should it be proved that the bones of man are there really imbedded, and that the animals found with him are (like the elephant of Jabalpúr) of the existing Asiatic species, it will form a strong and very important link of connexion between the state of things

at two distant epochs of our globe, now distinguished as the recent and fossil periods.

"In digging wells in the *Doab*, or in any part of the Upper Gangetic plain, the search for fossil bones at considerable depths should not be neglected, even under the stratum of kankar, which occurs almost everywhere in the yellow clay. We might not despair even of finding bones at the lowermost depth to which we have bored in Calcutta, for the yellow clay under the blue alluvial beds contains kankar, and is of the same apparent age as that of the *Doab*."

No. 9.

ON THE MANUFACTURE OF GLAUBER'S SALTS.

The geological features of the country about Lucknow have nothing striking about them. The soil is for the most part a rich alluvial deposit, and partakes of the general character of formations in the great valley of the Ganges. In saline mineral productions it is very rich. In the neighbourhood of the city of Fyzabad the earth abounds with saltpetre of so good a quality, that in the markets of Europe the Oude nitre invariably commands the highest price. The mode of manufacturing this article for sale is very similar to that already described in a former portion of this work.

At Oonao, the frontier town, about ten miles distant from Cawnpore, the soil abounds with rough sulphate of soda (Glauber's salts). This saline formation runs for miles, in patches, across the country towards the district of Sultanpore. It is called *kharee muttee*. *Kharee* being the Arabic word from which our well-known term alkali comes. Al or il is the Arabic definite article prefix, and means *the* kali, as *al*koran means *the* koran. *Muttee* is a Sanscrit word, meaning earth. This valuable deposit is chiefly used as a condiment. The villagers give it to their sheep, mixed in the fodder, but to no other animal. It is said to have the effect of fining the fleece.

When at Cawnpore, in 1830, in charge of the medi-

cal depôt, the supply of Glauber's salts having become exhausted, and many medical officers requiring a provision, I proposed to the medical board, through the proper channel, the manufacture of a quantity as an experiment, in order to comply with the present demands; which meeting with their sanction, about eight cwt. were refined, and proved equal in quality to the best samples sent from Europe. In my communication to the board on the subject, I called the attention of the members to the fact, that, from the known extent of this saline deposit, salts to an unlimited amount could with great facility be refined here, and would completely supersede the necessity of obtaining any further supply from England.

The face of the country whence the salts are procured, is flat, and intersected by deep ravines. In its natural state the saline earth is dug out, wherever it presents itself in an efflorescent form, the masses being hard, striated, and mixed with sand. In rendering the salt free from impurities little difficulty is experienced; the process which I adopted being the same as that followed by the natives, which is found to be both easy and simple. A more economical method even than this could, I am convinced, be established, were the attention of the government ever to be practically directed, and proper encouragement given, to the improvement of the resources of Hindústan; but while the fashion obtains to import from England articles which are the natural produce of the Indian soil, these matters will never command the attention they deserve; and like many other valuable products, these extensive and valuable salt deposits will continue, as they now are, disregarded and useless. I do really believe if saltpetre could be anywhere found in England, it would be sent out to India in preference to giving encouragement to its manufacture in Hindústan.

The process usually adopted for refining sulphate of soda consists in boiling the impure earth in little more than its weight of water until a pellicle forms, the whites of eggs being previously beaten up and mixed in it. It is then taken off the fire and set aside, that the impurities may subside from the supernatant liquor.

A second boiling takes place by adding some additional fresh water to the liquor, which has to be carefully poured off into the boiler. When a strong pellicle is formed, the vessel is once more taken off the fire, and the liquor set aside to crystallize. A good deal of saline matter must be wasted in the impurities; but even in this rude manner two pounds of the rough material will yield one pound of pure Glauber's salts.

An analysis, which, in conjunction with Dr. Campbell, I made of this earth, was found in 200 parts to contain as follows:—

Dried Sulphate of Soda . . .	145.9
——— Muriate of Soda . . .	6.1
Alumina	25.0
Oxide or Carbonate of Iron . . .	1.5
Trace of lime (say)	1.0
Silicious earth	9.0
Loss	11.5
	200

Besides the sulphate of soda deposit, considerable quantities of carbonate of soda are found in the district of Sultanpore as well as at Ghazeepore. The Oude people have hitherto made no objection to any one carting this mineral earth away; but were it to grow into extensive demand, they would in all probability levy an impost on it. We are independent of them, however, in this respect, for our own province of Tirhoot, as has been before noticed, is very abundantly supplied with this mineral, while others would yield any quantity; and, therefore, we have no occasion to go into the king of Oude's dominions for the rough material, since a supply sufficient for the most ample demand can be obtained in districts of our own.

I found that, including the outlay for earthen jars, eggs, fire-wood, and cartage, I could refine this salt at about threepence a pound; but with management and care, there is no doubt of its being produced at a much less cost. By the time the eight cwt. were consumed, a supply from Calcutta, which had been sent out from England, reached the depôt; and the old practice of bringing "coals to Newcastle" has ever since been followed.

No. 10.

METEOROLOGICAL AND HYGROMETRICAL TABLES.

THE monthly tables kept at the Surveyor-General's Office in Calcutta, are now capable of furnishing three years' data for the illustration of the climate of Calcutta, as regards the pressure, temperature, moisture, rain, state of the winds, and aspect of the sky.

TABLE I.

Winds, rain, and aspect of the sky, most prevalent at Calcutta, from three years' observations.

Month.	Sunrise.		Noon.		Sunset.		Rain.
	Winds.	Clouds.	Winds.	Clouds.	Winds.	Clouds.	Inches.
Jan.	O.	O.	N. N.E.	O. ci.	O. N.W.	O.	0.00
	O. N.W.	Fogs.	N.W. N.	O. cu.	O.	O.	
	O. N.E.	O.	N.W. var.	O.	O.	O.	
Feb.	O.	Morning.	N. var.	O. ci.	O.	O.	0.53
	O. N.E.	Fogs.	N.E. var.	Cir. cu.	N.E. O.	O. cum.	
	O. N.W.	Cir.	W. var.	Cum.	N.W. O.	O. cum.	
March	N.E. var.	O. Ci.	Variable.	Cum.	O.	O.	0.74
	O.	O. Ci.	S.W. var.	Cum. st.	O. S.	Cum.	
	S.E.S.W.	O. Ci.	Variable.	Cum.	S.E.	Cir.	
April	Southerly	Cum.	S.W.S.E.	Cum. ci.	S.E.	Cir.	4.08
	O. S.	Cum.	S. S.W.	Cum. ci.	S.E.	Cum.	
	S.W.S.E.	Cir.	S.E. S.W.	Cum.	S. var.	Cu. ci.	
May	O. S.	Cum.	S. var.	Cum.	S. S.W.	Cum.	5.78
	O. S.	Var.	S. S.W.	Cum. str.	S. S.E.	Cum.	
	O. S.E.	Cir.	S.S.E.	Nim. ci.	S.E.	Cum. ci.	
June	S.W. O.	Cum.	S.E. S.W.	Cum- str.	S.	Cum. str.	16.71
	S.E.	Var.	S.E. var.	Cum. str.	S.E.	N. ci. S.	
	S. O.	Var.	S. calms.	Cum. n.	S.E.	Cum. str.	
July	S.W.S.E.	Cir. str.	S.E. S.W.	Cum. str.	S.W. O.	Cum. str.	8.98
	O. S.	Cum. str.	Var. S.E.	Cir. n.	S.E. var.	Ci. str.	
	O. S.E. V.	Nim.	Var. W.	Nim. cu.	S.W. var.	Ci. cu.	
Aug.	S.	Cum. str.	S.E.	Cum. str.	S.E.	Cum. str.	10.41
	S.E.	Cum. str.	S.E. S.	Cum. str.	S.E. var.	Cir. str.	
	S.N.E.	Sun. str.	S.E. var.	Cum. str.	S. var.	Cir. n.	
Sept.	G. S.E.	Cum. str.	S.E. var.	Cum. str.	S.E.	Cum. str.	6.70
	O.	Cum. str.	S. var.	Cum. str.	S. S.W. S.E.	Cir. str.	
	O.S.N.E.	Cir. str.	Variable.	Cum. cir.	Variable.	Cum. ci.	
Oct.	O.N E.S.E.	Cum. ci.	E. var.	Cum.	N.E. O.	Cum.	5.84
	O. var.	Cum.	N.E. var.	Cum.	O. var.	Cum.	
	O. N.N.E.	O. Cu.	N. E. W.	Cum.	N.E. var.	Cum.	
Nov.	O. N.E.	O.	N.E.	Cum.	N.W. O.	O.	0.06
	O. N.	Cir.	N. var.	O.	Var. O.	O. cu.	
	O.	Cir.	N.E. N.	Cum.	O. N.E.	O. ci.	
Dec.	O. N.	O.	N.E. N.W.	O. cu.	O. N.	O.	0.00
	O. N.	O.	N. N.W.	O. cum.	O.	O.	
	O.	O.	N.W. N.E.	O. C. S.	O. N.W.	O.	
					Average of rain for three years . .		59.93

These registers are purely *instrumental*, for there are two modes of observing the weather; one by means of fixed instruments, the other by a continual log-book of ocular demonstrations on the formation and dispersion of clouds, force and direction of winds, influence of the ground, hills, water; of storms, lightning, auroræ, and so forth. The foregoing table comprehends the general range of the weather; the wind, the clouds, and the rain, having the same letters to denote the nature of the clouds, as are applied in the monthly registers. Zero denotes the absence of wind or cloud; and the degree of force, or of prevalence of particular winds, is shown by *the form or size of the printing type*.

To place the relative course of the barometer and thermometer in a more convenient form for comparison, the following tabular view of their range throughout the year has been constructed; and by the addition of other localities, in the form of parallel columns, it derives much additional utility. The value of this table may be estimated, when it is stated that it presents a convenient epitome of meteorological phenomena between 12° and 30° of north latitude. As the several barometers were never accurately compared together, entire dependence cannot be placed upon the mean altitudes given; but with regard to Calcutta, Benares, and Saharunpore, as some opportunities occurred of comparison, through the instruments of different travellers, the relative altitude of these places can be estimated tolerably well. Thus Saharunpore will be found to be almost exactly 1000 feet above the sea. Benares, in like manner, may be safely stated in even numbers to be 300 feet above the sea—as the observations of Captain Hodgson and Dr. Royle have been ascertained to coincide.

TABLE II.

Monthly deviations of the barometer and thermometer from their annual mean height at Calcutta; and at several other places, introduced for the sake of comparison.

Month.	Barometer at 39° Fahr.					Thermometer.				
	Madras, mean of 21 years from 1796 to 1831.	Ava, 1830.	Calcutta, for 3 years, 1829-30-31.	Bonnors, 4 years' observations, 1822—1826.	Saharunpore, 1826—1827.	Madras, mean of 21 years' observations max. and min.	Ava, 1830, sunrise and 4 P.M.	Calcutta, 3 years' observations max. and min.	Bonnors, 4 years' observations max. and min.	Saharunpore, 1826—1827.
January	Inches. .146	Inches. .229	Inches. .208	Inches. .273	Inches. .274	Degrees. 6.5	Degrees. 13.7	Degrees. 11.6	Degrees. 17.0	Degrees. 21.8
February	.131	.115	.172	.175	.219	4.5	4.9	6.0	11.5	20.9
March	.087	.051	.095	.107	.151	1.8	2.8	1.0	1.5	0.1
April	.006	.028	.030	.043	.061	9.7	7.8	5.1	9.5	6.1
May	.124	.105	.152	.136	.060	5.2	6.6	7.5	13.9	11.6
June	.117	.156	.248	.289	.217	2.4	7.1	5.5	13.1	17.5
July	.103	.176	.218	.308	.393	3.9	4.4	4.6	6.9	12.8
August	.058	.126	.194	.203	.278	3.0	4.1	3.6	6.4	10.0
September	.037	.099	.115	.093	.156	2.1	4.3	3.7	5.8	9.5
October	.018	.010	.020	.074	.047	0.1	2.2	2.5	1.3	0.8
November	.006	.102	.161	.181	.209	3.1	4.2	5.4	9.7	10.8
December	.124	.201	.259	.279	.245	4.9	10.1	11.5	17.6	13.8
Annual Mean	29.810	29.573	29.764	29.464	28.766	81.69	78.39	78.13	77.81	73.5
	.270	.405	.506	.587	.672	13.9	.21	19.1	31.5	.8

These observations were made by Mr. Goldingham at Madras; Major Burney at Ava; Benares Oriental Magazine, 1827; Captain Hodgson, and Dr. Royle, at Saharunpore.

It will be remarked that the range of variation in the weight of the atmosphere increases with the lati-

tude, even up to the foot of the Himalaya mountains; and that it is accompanied by a corresponding increase in the range of the thermometer.

HYGROMETRY.

August is the most damp month of the year to the sense; but June is the month in which the atmosphere is really loaded with the greatest weight of aqueous vapour. January is in every respect the driest season of the year, but the drought at Calcutta naturally falls far short of what is experienced at Benares and Saharunpore, where the depression of the moistened thermometer sometimes exceeds 35 degrees.

TABLE III.

Depression of the wet bulb thermometer, and deduced tension of vapour in the atmosphere at Calcutta, 1829—30—31.

Month.	Sunrise.		9.40 A.M.		Noon.		3.50 P.M.		4 P.M.		Sunset.	
	Dep.	Ten.	Dep.	Ten.	Dep.	Ten.	Dep.	Ten.	Dep.	Ten.	Dep.	Ten.
January	2.3	.82	8.4	.51	13.1	.37	13.9	.31	14.4	.32	9.3	.50
February	1.6	.87	8.5	.56	12.4	.44	14.4	.38	13.9	.39	11.1	.47
March	1.9	.89	8.7	.59	12.6	.47	14.2	.41	14.1	.41	10.7	.51
April	1.4	.94	8.1	.66	11.7	.53	13.9	.46	12.7	.50	8.1	.64
May	1.8	.92	7.3	.60	9.8	.62	10.8	.58	9.7	.61	6.0	.73
June	1.6	.92	4.4	.78	6.6	.71	6.6	.73	6.2	.76	0.5	.93
July	1.9	.90	4.6	.79	5.5	.75	5.5	.74	5.0	.77	3.6	.83
August	1.6	.93	4.4	.80	5.4	.77	4.9	.77	4.8	.78	3.1	.85
September	1.7	.91	5.3	.76	6.5	.71	5.8	.73	5.9	.76	3.8	.81
October	1.5	.92	6.1	.71	8.0	.65	8.6	.63	7.4	.66	4.3	.79
November	2.8	.85	9.0	.55	12.3	.44	13.9	.40	12.6	.43	8.1	.59
December	2.4	.83	7.4	.59	10.8	.47	12.5	.43	11.3	.44	6.9	.61
Mean Tension	. .	.892		.665		.577		.547		.570		.690

TABLE IV.

Mean barometric pressure of aqueous vapour in the air during the same period, deduced from Table III., and Dalton's table of aqueous tensions.

Month.	Sunrise.	h.m. 9.40 a.m.	Noon.	h.m. 2.50 p.m.	4 p.m.	Sunset.
	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
January	0.336	0.336	0.300	0.288	0.275	0.275
February	.513	.476	.418	.407	.300	.403
March	.703	.590	.546	.504	.500	.535
April	.846	.792	.721	.649	.690	.755
May	.904	.931	.911	.911	.902	.941
June	.994	.980	.975	.985	.995	.987
July	.909	.908	.900	.903	.901	.910
August	.911	.920	.916	.914	.897	.926
September	.892	.889	.859	.869	.887	.861
October	.840	.788	.773	.738	.760	.814
November	.588	.495	.449	.424	.432	.543
December	.465	.456	.424	.413	.404	.485
Means . . .	.751	.713	.682	.667	.669	.710

It is here observable that besides the *apparent* drying of the air, caused by the increase of heat during the day, it actually seems to become less loaded with moisture from sunrise to three P.M., to the extent of about 10 per cent.: this is not easily explained without recourse to suppositious errors of the instruments, or of the formulæ of calculation: for it is difficult to imagine that the vapour should rise independently of the air with which it is mingled; or if it does rise, that it should fall again so rapidly, to resume its place in the lower atmosphere on the following morning.

It might be expected, *à priori*, that where fogs prevailed in the morning, or where dew was deposited, the pressure of aqueous vapour measured in the morning would be less than in the middle of the day; and the appearance of a contrary result, if it does not point to a probability of errors in the instruments, or in the experiments upon which the calculations are grounded, tends at any rate to show that much remains to be done to explain facts; and to place this branch of meteorological inquiry upon a firm basis.

It is, however, satisfactory to know, that the register kept at the surveyor-general's office is in this, as well as other respects, superior to most of those published in the scientific journals of England, where the column devoted to the hygrometer is generally a mere mass of figures, convertible to no useful purpose. It is to be hoped that all who register their observations in India, will adopt the same kind of hygrometer, namely, a thermometer with a bulb projecting from the scale, and covered with a wetted muslin bag. Its indication should first be carefully compared with the dry thermometer, and corrected for any errors of division.

Abstract of Observations of the temperature, pressure and hygrometrical state of the air in the vicinity of Delhi. By MAJOR OLIVER.

"The observations were made at various places within the Delhi territory, not exceeding fifty miles' distance from the city, and generally much less.

"It will be observed that there is an extreme difference of about 120 feet in the elevation of Gurgaon (a place near Delhi) above Calcutta, as deduced from the observations at the two places for the several months: when it is considered that each of the results in the table is deduced from the mean of about sixty observations at each place, it is evident how little dependence can be placed on the *results* of *single* observations at places so far distant."

In explanation of this, Mr. James Prinsep has offered the following remarks:—"The difference of the altitudes deduced from the monthly means, is just of the nature which was anticipated, in consequence of the annual barometrical range, increasing with the latitude, as noticed in the observations on the Calcutta tables; for at all places in India, north of Calcutta, the summer observations will give too high an altitude—the winter one too low; for southern latitudes the reverse will occur."

It appears that May is the driest, and August the dampest month, considering the comparative tensions

as the fairest scale of the humidity of the air. There is a less quantity of aqueous vapour in a given quantity of air in January than in May; but the difference of temperature makes the drying power of the air at the latter month superior to that of the former. By a rough calculation the weight of aqueous vapour in a cubic foot of air varies from 3.3 grains in January to 10.3 in August. Comparing the driest month at Delhi with the driest month at Calcutta, Mr. Prinsep found the ratio as 5 to 3 nearly; the dampest month is nearly the same at both places, and the mean of the year as 5 to 4 nearly.

TABLE V.

Table of mean temperature of each month for three years, as observed at various places in the vicinity of Delhi.

	1827.		1828.		1829.		Mean.		Diff. from mean.	
	Day.	Night.	Day.	Night.	Day.	Night.	Day.	Night.	Day.	Night.
	°	°	°	°	°	°	°	°	°	°
Jan.	56.7	51.4	53.7	50.3	58.4	53.5	56.3	51.7	— 19.7	— 19.1
Feb.	66.0	58.6	56.8	51.8	62.0	55.8	61.6	55.4	— 14.4	— 15.4
March	74.0	66.0	70.6	63.8	73.0	66.0	72.5	65.3	— 3.5	— 5.5
April	83.8	75.5	79.3	74.2	86.6	77.9	83.2	75.9	+ 7.2	+ 5.1
May	90.4	,,	87.0	82.2	96.7	83.9	91.4	85.6	+ 15.4	+ 14.8
June	91.7	,,	93.7	90.4	92.0	90.0	92.5	90.2	+ 16.5	+ 19.4
July	90.1	,,	88.2	85.5	79.7	80.6	86.0	83.0	+ 10.0	+ 12.2
Augt.	85.5	,,	83.6	80.9	82.5	79.4	83.9	80.1	+ 7.9	+ 9.3
Sept.	83.2	79.3	85.2	,,	81.7	77.6	83.4	78.5	+ 7.4	+ 7.7
Oct.	77.7	70.2	76.2	71.6	77.5	72.4	77.1	71.4	+ 1.1	+ 0.6
Nov.	65.7	60.3	65.2	55.2	65.8	61.7	65.6	59.1	— 10.4	— 11.7
Dec.	57.1	53.1	62.3	54.8	57.3	52.1	58.9	53.3	— 17.1	— 17.5
Means	76.8		75.2		76.1	71.3	76.0	70.8		

The mean of six observations of the temperature of water in wells from 74 to 94 feet deep gives 74.0 varying from 71° to 78°.

TABLE VI.

Temperature of the air—Depression of moist thermometer (D)—Point of saturation (S) or the dew point and mean comparative tension (T)

Year and Month.	Sunrise.			10 A.M.			Noon.		
	Temp.	D.	S.	Temp.	D.	S.	Temp.	D.	S.
	°	°	°	°	°	°	°	°	°
April 1827	67.0	8.9	52.4						
May	77.5	9.9	63.5						
June	82.1	9.4	69.0						
July	82.1	6.3	73.8						
August	79.3	2.7	75.9						
September	74.9	2.3	72.0						
October	61.5	4.9	53.8						
November	49.7	4.1	42.4						
December	46.5	0.8	45.2						
Jan. 1828	43.8	1.2	41.8						
February	42.3	1.5	39.7						
March	52.5	5.1	43.3						
April	63.1	8.3	48.7						
May	71.3	14.0	46.0						
June	82.8	11.9	65.5	96.5	20.7	66.0			
July	81.7	5.2	75.0	92.3	12.6	75.4			
August	78.4	0.8	77.5	85.0	6.0	77.3			
September	..	..	..	87.0	7.8	76.8			
October	..	..	..	87.0	14.0	66.8			
November	..	..	..	72.0	14.0	47.2	76.0	17.0	44.8
December	..	..	..	..	..	..	73.0	13.0	50.8
Jan. 1829	..	..	..	..	..	..	68.0	12.0	46.4
February	..	..	..	..	..	..	74.0	15.0	47.3
March	..	..	..	..	..	..	90.0	23.2	50.2
April	..	..	..	..	..	..	99.0	30.0	45.5
May	..	..	..	100.6	26.0	60.2			
June	..	..	..	96.1	17.5	71.7			
July	..	..	..	84.0	5.0	77.7			
August	..	..	..	83.9	4.9	77.7			
September	..	..	..	86.6	11 9	70.0			
October	..	..	..	84.5	18.4	54.2			
November	..	..	..	72.7	15.4	44.1			
December	..	..	..	62.4	13.0	35.0			
Jan. 1830	..	..	..	66.0	14.7	35.2			
February	..	..	..	69.8	8.8	55.9			
March	..	..	..	77.3	15.8	49.8			

TABLE VI. (continued.)

Year and Month.	2. 30 P.M.			4 P.M.			Sunset.			Mean.	
	Temp.	D.	S.	Temp.	D.	S.	Tem.	D.	S.	S.	T.
	°	°	°	°	°	°	°	°	°	°	°
April 1827	100.5	30.3	47.8	..	..	..	84.1	19.1	51.7	50.1	.330
May	103.2	29.8	55.0	..	..	..	..	..	..	59.2	.359
June	101.4	24.1	65.8	..	..	..	..	..	..	67.4	.456
July	93.1	18.4	72.5	..	..	..	..	..	..	73.2	.581
August	91.8	11.4	76.7	..	..	..	..	..	..	76.3	.744
September	92.2	14.0	73.0	..	..	..	83.8	8.7	72.0	72.5	.706
October	94.0	25.8	49.5	..	..	..	78.9	16.7	50.0	51.7	.412
November	81.8	21.4	40.8	..	..	..	70.9	15.3	41.3	41.6	.425
December	67.7	10.5	49.6	..	..	..	59.8	5.5	50 7	47.4	.706
Jan. 1828	63.6	9.2	47.4	..	..	..	56.8	5.5	47.5	44.6	.723
February	71.3	16.7	37.7	..	..	..	61.3	10.4	41.3	38.7	.518
March	88.8	27.0	34.2	..	..	..	75.0	18.2	40.0	38.7	.324
April	95.5	28.6	43.0	..	..	..	85.3	23.3	41.0	45.9	.317
May	103.0	33.0	43.3	..	..	..	93.0	34.1	52.7	44.7	.238
June	104.7	27.9	62.1	101.5	24.7	64.6	97.9	24.3	60.6	63.8	.379
July	94.8	15.2	74.0	93.6	15.1	72.8	89.2	11.7	73.3	74.5	.644
August	88.7	8.3	77.9	87.0	7.0	78.0	83.4	3.9	78.6	77.7	.827
September	..	..	..	88.0	9.9	74.8	..	..	..	75.8	.738
October	..	..	..	92.0	22.0	56.5	..	..	..	61.7	.615
November	..	..	..	79.0	20.0	40.3	..	..	..	44.1	.475
December	..	..	..	..	..	..	..	..	..	50.8	.668
Jan. 1929	..	..	..	..	..	..	..	..	..	46.4	.651
February	..	..	..	..	..	..	..	..	..	47.3	.595
March	..	..	..	..	..	..	..	..	..	50.2	.457
April	..	..	..	..	..	..	..	..	..	45.5	.248
May	..	..	..	107.6	33.3	52.3	..	..	..	56.2	.265
June	..	..	..	100.5	23.2	66.4	..	..	..	69.0	.476
July	..	..	..	87.0	7.0	78.0	..	..	..	77.8	.941
August	..	..	..	85.8	6.7	77.5	..	..	..	77.6	.854
September	..	..	..	91.7	15.8	69.2	..	..	..	69.6	.671
October	..	..	..	91.1	25.6	44.5	..	..	..	49.4	.382
November	..	..	..	79.1	20.6	38.3	..	..	..	41.2	.417
December	..	..	..	71.3	18.1	32.5	..	..	..	33.8	.424
Jan. 1830	..	..	..	74.9	20.5	29.6	..	..	..	32.4	.394
February	..	..	..	76.0	14.1	52.3	..	..	..	54.1	.654
March	..	..	..	83.4	21.9	42.0	..	..	..	45.9	.416
				Mean first year						55.1	.523
				Second						56.9	.550
				Third						54.4	.512
				Mean of three years . .						55.5	.528

TABLE VII.

Comparative Tension (T.) and force of vapour at the dew point (F.)

	T.	F.		T.	F.		T.	F.		T.	F.
April 1827	.320	.363	April 1828	.317	.312	April 1829	.248	.308	April 1830	.295	.328
May	.359	.501	May	.238	.299	May	.565	.450	May	.287	.417
June	.456	.663	June	.379	.586	June	.475	.699	June	.437	.649
July	.581	.804	July	.644	.840	July	.941	.936	July	.722	.860
August	.744	.891	August	.827	.933	August	.854	.930	August	.808	.918
September	.706	.786	Sept.	.738	.876	Sept.	.671	.713	Sept.	.705	.792
October	.412	.384	October	.615	.546	October	.382	.354	October	.470	.428
November	.425	.266	November	.475	.292	November	.417	.262	November	.439	.273
December	.706	.329	December	.668	.372	December	.424	.199	December	.599	.300
Jan. 1828	.723	.298	Jan. 1829	.651	.317	Jan. 1830	.394	.189	Jan. 1831	.589	.268
February	.518	.239	February	.595	.328	February	.674	.418	February	.589	.328
March	.325	.234	March	.457	.365	March	.416	.312	March	.399	.305
Means	.523	.480		.550	.506		.512	.481		.528	.489

END OF VOL. I.

00048615

ASIATIC SOCIETY OF BOMBAY

Digitized with financial assistance from
NSDL
Technology, Trust & Reach
on 07 January, 2017